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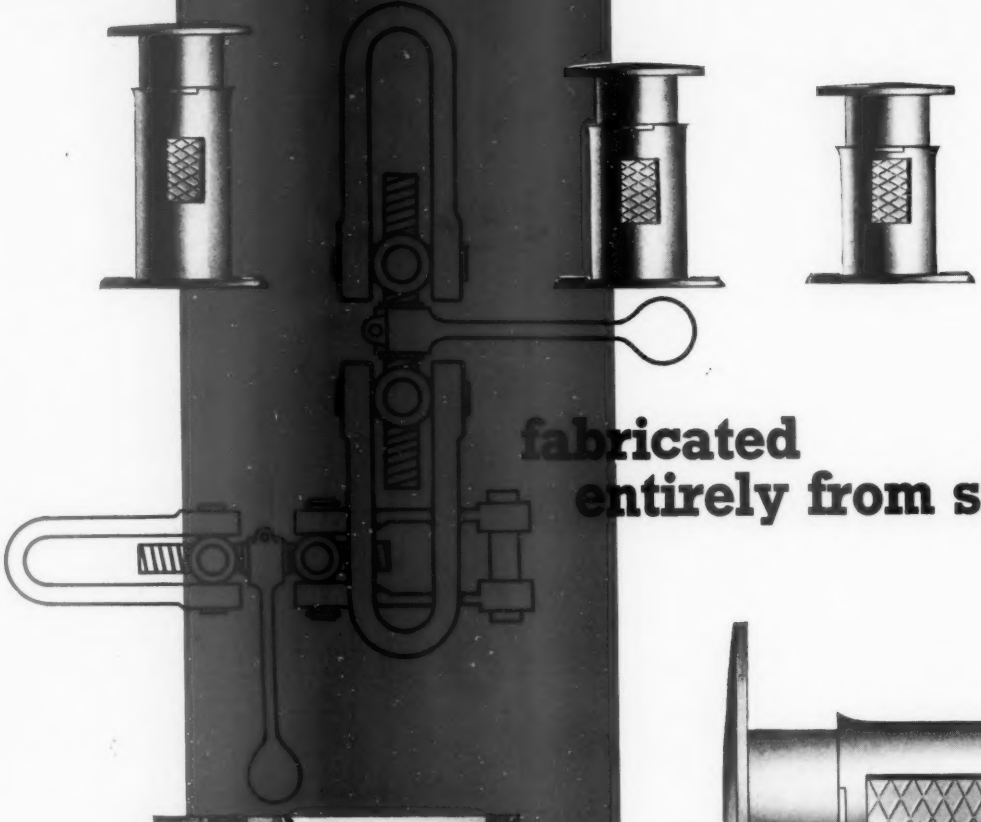

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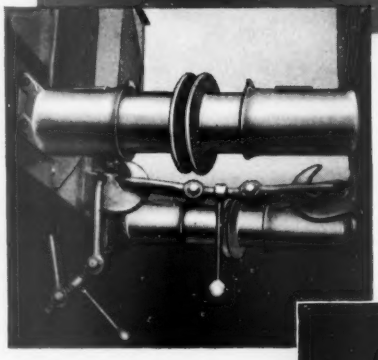

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An index to the 110*th volume of* THE RAILWAY GAZETTE, *covering the issues from January* 2 *to June* 19, 1959, *has been prepared, and is now available free of charge on application to the publisher.*

Further Thoughts on the Unofficial Strikes

LAST week, *The Financial Times* closed an industrial article with the ominous words: "It is well known that the T.U.C. has nothing approaching executive authority over its affiliated unions." The same article stated that the British Employers' Confederation is awaiting the outcome of the T.U.C.'s inquiry into unofficial strikes with interest—but also with obvious scepticism. The inquiry, which is to be conducted by the weightiest members of the general council of the T.U.C., is to begin next Monday. It is likely to be next summer—and perhaps even later—before final conclusions are reached, although an interim report may be issued before next year's Congress takes place. Both Sir Thomas Williamson, the Chairman of the Committee, and Sir Vincent Tewson, General Secretary of the T.U.C., were at pains to stress the thoroughgoing character of the investigation. "We are determined that we are really going to deal with this question," said Sir Thomas Williamson, and Sir Vincent Tewson added: "It is going to be thorough and objective." The whole matter appears to possess an unfortunate resemblance to the activities of the now-defunct League of Nations, an idealistic body comprised, like the T.U.C., of honourable and well-meaning men working together for peace. Although backed by the moral support of right-thinking individuals everywhere the League failed to achieve its aims—even through the use of sanctions—because it lacked the equivalent of a body of police to enforce its decisions. True, there was the individual militant action of its constituent member-nations, but this invariably was recognised by the rest of the world as anything but disinterested and so was discounted in the cause of justice almost before it had begun. The use of force seldom can be morally justified, and its final worth always must be a matter of opinion. But, if the concept of service as an ideal to be practically realised is substituted for the word "force," and moulded into a living standard, the T.U.C. might conceivably succeed where the League of Nations has indubitably failed.

Rise in Steel Production

OUTPUT of steel in the United Kingdom has been approaching another record. Statistics published by the Iron & Steel Board show that production of crude steel last month averaged 441,000 tons a week, higher than in any previous October and almost equal to the record output of May, 1957. Production is 20 per cent greater than a year ago, and the industry is reported to be working at 92 per cent of its capacity. The makers of heavy sections report an increase in demands over the past few months. There are stated to be shortages in steel sheet, and in other products used by the engineering industries, although production is at full capacity. This revival is reflected in British Railways mineral traffics, though not yet to the extent which the higher output might lead to expect. The main reason for the recovery in the steel industry is increased domestic demand. Steel producers on the Continent also are reported to be working to capacity to satisfy home demands. The proportions of British and Continental output exported to the U.S.A. and Canada have been small, and demands do not seem to have been greatly increased by the steel strike in the U.S.A.

Mr. Marples Sets to Work

GREAT powers might have to be sought from Parliament by the Minister of Transport, Mr. Ernest Marples, to solve the problems of public and other transport, according to the Minister in his speech as the guest of the Public Transport Association annual dinner last week. As one new to his department, he pointed out, he was now assessing his task. This involved seeing for himself difficulties on the spot and meeting the men in the industries concerned. Mr. Marples has lost no time in visiting London termini of British Railways, Southern Region, to study *inter alia* peak-hour working. He stressed his belief in collective thinking at the Ministry, and expression in writing of his objectives, as necessary preliminaries to action to deal with the transport situation, and he hoped for the support of the public transport undertakings. Mr. A. F. R. Carling, Chairman of the Association, emphasised the community of interest of railway and road passenger transport. He reminded his audience of the extensive interests of the British Transport Commission in bus undertakings. There was room in Britain for both train and bus to play their essential parts.

New Business Travel Facility

A SCHEME to enable British businessmen to travel anywhere at a moment's notice has been announced by Thos. Cook & Son Ltd. Under it, credit is supplied for hotel accommodation, car hire, and all travel tickets. Charges involved are referred to the United Kingdom for payment in sterling. The service is free, and available to all account customers. It can be obtained on production of a "Cook's Letter of Authority," a printed *pro forma* completed with identifying details of the holder. It is operative at any of

Cook's 400 branches in the 57 countries of the Cook/Wagons-Lits organisation. Although the Letter of Authority is not the equivalent of a cheque, it provides the means of obtaining money. In effect, it frees a travel allowance for personal expenditure. Used in conjunction with travellers' cheques, it permits the acquisition of as much money as the accountant in the home country will authorise. Consequent on the recent freeing of the £, and as a further safeguard against temporary bankruptcy while abroad, a "booster" cheque can also be provided. This may be presented at any Cook's branch in time for clearance with the traveller's office before the first amount of travel allowance is spent.

Overseas Railway Traffic

OPERATING revenues of the Canadian National Railways for the month of September amounted to $64,158,000. Expenses, taxes, and rents totalled $63,673,000, resulting in a net operating income for the month of $485,000. In September, 1958, operating revenues were $57,841,000; expenses, taxes, and rents were $57,879,000 and the net operating deficiency was $38,000. Canadian Pacific Railway revenue for September amounted to $37,688,048 compared with $37,297,946 in September, 1958. Railway expenses were $35,551,712 ($34,493,506) resulting in net earnings of $2,136, 336 ($2,804,440). Aggregate net earnings for the nine months, January-September, 1959, amounted to $360,526,866 compared with $348,116,299 in the corresponding period of 1958. East African Railways & Harbours approximate railway revenue for September was £1,594,000 as compared with £1,581,000 in September, 1958. With the exception of passenger and goods traffic, the receipts from which declined by a total of £1,500, earnings from all other sources of revenue increased by £15,000. The earnings from livestock services increased by £3,500, inland marine services by £1,400, and road services by £6,100. Railway operating revenues of the International Railways of Central America for September amounted to $834,953 compared with $955,984, a decrease of $121,031. The net revenue from railway operations showed a loss of $258,443 ($146,964 loss), and the net income a loss of $299,160 ($133,389 loss).

Co-operation Between U.S.S.R. and the West

THE offer by the U.S.S.R. Railways of Leningrad as the venue of the next European Timetable & Through Carriage Conference is a further welcome step in co-operation between the railways of Russia and those of Western and Southern Europe and contiguous countries in Asia. The invitation was extended, and accepted, at the 1959 conference in Vienna last month. Next year's meeting in Leningrad, from September 28 to October 4, is the first of these conferences to be held in Russia since the war of 1914-18, before which the meetings were held twice a year. The early summer conference took place at St. Petersburg (now Leningrad) in 1899. Passenger services, including through vehicles with axles changed at the break of gauge station at or near the Russian frontier, have been in operation for some years between Moscow and stations in Poland, Roumania, and other countries in Eastern and Central Europe. More active participation by the U.S.S.R. Railways in operating services from and to Western Europe has no doubt been necessitated by the increase in tourist traffic to Russia. A service between the Hook of Holland and Moscow in connection with the Harwich-Hook day steamer service has been agreed in principle for next summer.

Illegal Passenger Transport

ALL public transport operators know that many owners of motorcars in Britain and elsewhere break the law by conveying passengers for payment without a licence. The Ulster Transport Authority has stated publicly that this has affected its train and bus receipts. More recently the North Western Road Car Co. Ltd. announced its intention to suspend bus services over a route on which traffic had dwindled because of competition from vehicle owners plying unlawfully for hire. Such journeys are likely to be made to places such as factories, where the car owner and passengers wish to travel daily, or perhaps to railway stations. Bus undertakings may perhaps suffer more than railways, but all public transport is affected, and the number of privately-owned cars is increasing fast. Conviction of offenders is very hard to secure. The best the railways can do is to continue to improve the comfort of travel by train and quote the lowest practicable fares. Journeys by motorcar, especially another man's car, have their disadvantages,in winter weather, for instance. Nor is the cost of such rides negligible when replacements and other items are taken into account.

Success of Interfrigo Venture

TO develop international transport by rail of perishable foodstuffs, the administrations of principal railways in Belgium, Great Britain, France, Western Germany, Holland, Italy, and Switzerland 10 years ago founded Interfrigo, the international railway-owned company which specialises in refrigerated transport of perishable foodstuffs. They were joined later by railway managements in Greece, Luxembourg, Spain, and Turkey. The success of Interfrigo has surpassed the most optimistic estimates. Traffic increased from 21,000 refrigerated and insulated wagon-loads in 1951 to 70,000 in 1958, and it is estimated that this year's total will be 85,000. The organisation has achieved a pre-eminent position in the international transport of perishables, principally bananas, dairy produce, fresh fruit, and meat. It owns approximately 900 wagons, in which the equipment includes electrical ventilation. Some 300 new vehicles are under construction in Italy. In addition, it operates in international traffic over 10,000 refrigerated wagons belonging to its member administrations and their subsidiaries. Interfrigo wagons to and from Britain are worked via the Dunkirk/Dover and Zeebrugge/Harwich ferries. The general management is in Basle and the registered offices in Brussels. Interfrigo has also concluded agreements with most other European railway administrations. Its sphere of activity extends practically throughout the whole of Europe and it has representatives in each country.

Aids to Engineering Productivity

ANY advance in machine tool design for increasing the efficiency of semi-skilled labour can be a considerable aid to production in railway workshops and other branches of engineering. Several important advances aimed at increased productivity and a lowering of costs are being demonstrated until November 26, at the London showrooms in Vauxhall Bridge Road of Alfred Herbert Limited. Reference to the demonstration was made in our November 6 issue. For instance, work on the conventional 2D capstan lathe is shown to be simplified by a Herbert Programme Control System. By means of electrical bridges positioned by a punched job-card the correct direction and speed of chuck rotation is selected automatically for each turret position. The most elaborate device shown is the Herbert Datatrol which, from readings on a paper tape can set, in sequence, the spindle-head co-ordinates of a Herbert/De Vlieg Jigmil to an accuracy of ·0001 in. per ft. Thus, for toolroom work, machining locomotive gearbox casings, and so on, it is unnecessary to fit and change end-measuring gauges when precision boring by the jig-less method. In addition to conserving tool life, devices of the kind demonstrated greatly simplify inspection work.

Facing Facts in Financial Reporting

THE importance of showing, in accounts, the effects of any depreciation in the monetary unit is emphasised by Mr. Donald Gordon, Chairman & President of the Canadian National Railways, in a recent address to the Institute of Chartered Accountants of Quebec. His remarks apply to any enterprise in an economy affected by inflation, and may apply to a good many railways. Managements, he states, must consider the possibility of dissipation of real capital through inadequate recording of what is taking place. If recorded profits are inflated through the effects of changing money values, real capital may be deflated by demands for larger dividends and higher wages. As a preliminary remedy he suggests that the auditors should specifically state that the report does not attempt to record changes in the value of the monetary unit. He draws attention to a ruling by the American Accounting Association in 1951. While it was noted that the

"primary financial statements should continue to reflect historical costs," the Association recommended that the efficacy be tested of statements adjusted in the light of depreciation of the dollar. Such statements should be supplementary to the financial reports based on historic cost, and the two statements should be reconciled in public accounts.

Doubling in India

IN view of the large amount of double-tracking on the Indian railways in the past 60 years, it may seem strange that about one-third of the Calcutta-Delhi artery, the main line of the former East Indian Railway, is still single. One reason is that much traffic between the Bengal-Bihar industrial area and Upper India is worked, west of Moghal Sarai, over the old Oudh & Rohilkhand Railway, amalgamated with the E.I.R. in 1925. Of the 90 miles between Allahabad and Cawnpore, doubling of 48 miles was finished recently, and 12 more are due for completion by the end of this year. The need for converting the remaining single-line sections is to be considered when the proposals for new works under the third Five-Year Plan are reviewed. There is much industrial development in and around Cawnpore, and traffic between that area and Bihar and Bengal and Calcutta no doubt justifies the new work. There is no news of re-signalling on these sections. The terrain is flat, and despite the necessity to widen bridges over small tributaries of the Ganges and Jumna, conditions are favourable to doubling. The urgent re-signalling at many large stations and marshalling yards, and signalling on new lines in the industrial areas absorb resources of manpower and material.

Union Anxiety Over Railway Workshops

LAST week's issue of *The Railway Review* devoted considerable space to a recent Parliamentary debate turning on a question by Mr. Francis Noel-Baker, Labour Member for Swindon. Mr. Noel-Baker asked Mr. Ernest Marples, Minister of Transport, whether he had given a direction to the British Transport Commission regarding the proportion of carriage, wagon, and locomotive building to be allocated to British Railways' factories and to private firms. The Minister said he had not. The construction and repair of locomotives and rolling-stock was entirely a matter for the Commission. He did not think he should interfere. Mr. Marples' attitude is entirely correct. Although publicly owned, the British Transport Commission must, in the words uttered in 1947 by Mr. Herbert Morrison, "have a free hand within wide limits to do their job as they think best to achieve results." Answering Mr. J. T. Price, Labour Member for Horwich, who queried the relegation of workshops to maintenance work, Mr. Marples said that British Railways had inherited more shops than its integrated scheme needed. Somehow or other, this problem must be solved. In this connection, part of a policy statement in the same editorial is of interest. According to this, "steps should be taken immediately to develop workshop capacity." If such a course were followed, it would appear likely that, far from improving present redundancy, the situation would become aggravated. Relevant to the question of augmenting existing shop work is a further claim from the union's National Executive Council. This states that the activities of such Departments as the Civil Engineer, Outdoor Machinery, Road Motor, and Signal & Telegraph require a great amount of equipment and material. All steps possible should be taken for railway workshops to undertake the production of those requirements at present purchased from outside contractors. The statement of this tenet shows a wilful disregard of the facts of specialised manufacture. It cannot be supposed that men with a lifetime of experience in their work do not know of the specialised experience, skill, and equipment needed for the production of any item of railway equipment, however small. Nor can it be argued that "knowledge of" implies equivalent ability to design and produce.

Three factors make for technical perfection along any line—a history of exclusive research; sufficient resources, both financial and physical, to conduct adequate and sometimes unremunerative experiment, and a competitive market to convince in the most practical manner possible that the product excels. Though the unions may dispute the point until the end of time, the fact remains that neither the railway workshops nor the railway system as a whole exists to provide "jobs for the boys." They exist to provide efficient transport for passengers and goods at an economic price and, again in the words of Mr. Herbert Morrison, they "must not go easy because they know that in the last analysis the Government could not let them go broke." The experience of railways overseas, particularly that of those systems which are financially most successful, should be borne in mind: many limit workshop activity entirely to maintenance work and place complete reliance for supplies on outside industry.

Continuing with this aspect of the matter, reference may be made to a further question asked during the debate. Mr. Ernest Popplewell, Labour Member for Newcastle-on-Tyne, wanted to know whether the Minister was aware that the policy of the Commission was now to close railway workshops and to hand this type of work to private enterprise. Also, if he knew that some members of the area boards have deliberately said that the Commission is doing too much of its own work, and that that work should go to private enterprise. This question would appear to have little relation to the facts of the current situation as reported in our first editorial note last week. There, we recorded that 390 diesel multiple-unit vehicles are to be built in railway workshops for service within the next two years. Of 2,800 diesel multiple-unit vehicles and railcars now running, the workshops have already turned out about 1,800 and are to build a further 550 of 800 on order. Fifty-one vehicles are to be constructed at Swindon, 19 three-car trains at Eastleigh, and the rest of the 390 vehicles immediately on order at Derby. These figures show small indication of a policy to close railway workshops. The charge against the Commission has as little basis and logic as has a closely-allied accusation often levelled by disgruntled railwaymen against the Government. This is that "a determined effort" is being made "to undermine the stability of nationalised industry." The real mischief of this claim lies in its constant repetition, which could cause it eventually to be believed by men of sufficient intelligence to know better. Such an acceptance would surely be viewed by railway colleagues in other parts of the world with considerable amusement.

A final observation of *The Railway Review's* coverage of the debate prompts a comment on the treatment of the Minister's statement that "there is great harmony between the Commission and the trade union leaders." This phrase is printed in bold type and described as "vague." That word could also be attributed to the use of the phrase "N.U.R. policy" to describe the subsequent statement from which we have already quoted. To re-phrase an old principle: "All N.E.C. men are N.U.R., and some N.U.R. men are N.E.C. But not *all* N.U.R. men are N.E.C." Human nature being what it is, it would not be surprising to discover a certain degree of disunity on the Executive Council of any union.

Swindon-built Diesel-Hydraulic Locomotives

UNUSUAL features of design and running experiences with the Swindon-built diesel-hydraulic "D800" series locomotives of British Railways, Western Region, form the basis of a paper by Mr. G. E. Scholes read before a meeting in London of the Institution of Locomotive Engineers last Tuesday. The locomotive, which is based in the Krauss-Maffei "V.200" series of the German Federal Railway, was described in our July 18, 1958, issue.

Apart from the hydraulic drive feature, one of the best known and most praiseworthy characteristics of this Type "4" BB locomotive design is its light weight, 78½ tons for a power of 2,270 b.h.p. The technique of stressing the frame and body to achieve this result is attributed to theoretical work in the early 1920s subsequently developed in the spheres of aircraft and steel building construction and later applied successfully to passenger coach design. It was necessary for Swindon engineers to learn the technique as applied by the Germans to the design and construction of the "V.200" locomotive shell which has as its basis two 6½ in. dia. steel tubes surrounded by a honeycomb underframe, before work on the 13 in. narrower and 10 in. lower British Railways version could proceed.

Mr. Scholes describes the preliminary process of setting out shear force and polar bending moment diagrams for an assumed structure with estimated loads for five conditions of body support (varied lifting positions). The series of lengthy

calculations for various sections along the locomotive to determine the strength of the whole structure and the buckling strength of every unsupported area of load-carrying superstructure " skin " must be repeated for each proposed arrangement in the search for a structure which is sufficiently strong but not unnecessarily so. Dynamic loading is allowed for by multiplying the derived bending stresses calculated for normal loading conditions by 1.3 Stresses due to a buffing load of 200 tons are also calculated. The rectangular sections of unsupported 0·080 in. mild steel plate skin so divided by the vertical and horizontal 0·104 in. thick bent steel framework sections, were assumed to be rigid in the design stage for the purpose of calculating the bending and shear stresses for each whole cross-section of the locomotive.

The German technique includes the use of a formula for the comparison between calculated actual shear and compressive—buckling stresses, and those which are permissible, to arrive at a factor of safety. This may be as low as one for rolling stock because local deformation within the elastic limit of the rectangular sections on a shell construction is limited to a shift of stresses from the part concerned to adjacent parts of the structure.

The V. 200 design of pivotless and bolsterless bogie with its bell-crank linkage to the superstructure and torque-reaction arms for axle location has been retained. By reducing the wheel dia. by 3½ in. to 3 ft. 3½ in. with an axleload of nearly 20 tons, the load/diameter (P/D) ratio is 5·97, compared with 5 calculated at the maximum theoretical value permitted beyond which Hertz stresses might become troublesome. But Mr. Scholes points out that although the lower figure is generally considered necessary to safeguard the track, almost insurmountable difficulties in carrying out the locomotive redesign work would not in the long run prove to be an economical procedure.

In the twin Bristol-Siddeley-Maybach MD 650 tunnel crankcase engines with short disc-web crankshaft, the use of small multiple valves which are well cooled and subjected to relatively low stresses, the oil-cooled pistons, and insistence on the finest materials and the highest standard of workmanship have made possible a unit which, it is claimed, has none of the disadvantages sometimes associated in the past with high rotational speeds. Mr. Scholes particularly praises the combined fuel pump and injector system which has proved to be highly satisfactory in service. Cooling aided by the Serck-Behr-Hydrostatic fan drive enables the engines to reach the optimum working temperature quickly with a minimum of power absorbed. The apparatus saves weight and needs little maintenance as all moving parts run in oil. Stone-Vapor " Watchman " oil-fired pre-heaters help to reduce engine wear.

A considerable amount of the paper is devoted to the Maybach-Mekydro hydraulic transmission now being built under licence by J. Stone & Co. (Deptford) Ltd. This unit has a single converter and four-speed mechanical gearbox with an automatic mechanism to synchronise the relative speeds of claw clutch halves during engagement of the constant-mesh gears. The overall mechanical efficiency of the transmission and final drive of the Swindon-built locomotive reaches 82½ per cent, a figure only marginally lower than the overall efficiency of the electric transmission of the Southern Region diesel-electric locomotive No. 10203 previously tested by the Western Region. Mr. Scholes points out that the high overall transmission efficiency is associated with the highest operating speeds. He also mentions that if it is intended on occasion to use high-speed locomotives with this general type of transmission for hauling heavy loads at speeds below about 13 per cent of the maximum in any one gear, then the resultant increase in fuel oil consumption must be faced and provision made in the cooling system to dissipate the extra heat generated in the transmission.

Experience in service on steeply-graded routes in the West of England has shown that a rail tractive effort no greater than 0·24 times the nominal adhesive weight should be used for determining practical maximum loads. This is to eliminate difficulties which otherwise might occur in starting from signals on gradients steeper than 1 in 100 on moist rail conditions. As the first four controller-notch spacings appear to be too coarse for obtaining the fine balance which is desirable between starting rail tractive effort and adhesion over the practical range of adhesion conditions, an additional notch will be added to future locomotives of the series. Under sustained braking conditions the effect of single shoes acting on wheels of relatively small mass gives insufficient heat dissipation for satisfactorily controlling non-fitted goods trains. Because of this limitation Mr. Scholes suggests that, for the speeds at which it is desired to run, non-fitted trains should be abolished in favour of those which are partly-fitted. The Laycock-Knorr brake operating system in which rubber diaphragms are used to eliminate sliding metal surfaces, has been standardised after satisfactory tests.

Of the defects which have occurred in service, those attributable to electrical apparatus and the 2½ miles of wiring for control gear and so on, far exceed troubles due to any other cause. In this respect, Mr. Scholes believes that anything short of perfection must lead to a good deal of trouble because of the complexity of the circuitry.

British Transport Commission Traffic Receipts

COAL class traffic by rail is the only heading under which the carrying activities of the British Transport Commission did not, during Period 11, the four weeks ended November 1, show an increase compared with the corresponding figure for 1958. The greatly increased output of the steel industry is reflected in British Railways mineral receipts. At £3,897,000 these compare with £3,523,000 a year ago, when the industry was at a low ebb, and with £3,534,000 for Period 10. Railway merchandise traffic also has increased over the total for the preceding four weeks. Total merchandise receipts of £8,502,000, against £7,895,000 for Period 10 and £8,316,000 for Period 11 of 1958, are encouraging, though there is a long way to go before the merchandise and livestock traffics can be said to be in a really sound condition. The increase in parcels traffic seems to promise well.

	Four weeks to Nov. 1, 1959		Incr. or decr.	Aggregate for 44 weeks		Incr. or decr.
	1959	1958		1959	1958	
	£000	£000	£000	£000	£000	£000
Passengers						
British Railways ...	9,555	9,277	+ 278	120,408	119,499	+ 909
London Transport Road passenger services	4,327	4,301	+ 26	46,373	40,293	+ 6,080
Railways	1,906	1,893	+ 13	19,848	20,659	− 811
Provincial & Scottish Buses	4,399	4,362	+ 37	52,240	51,645	+ 595
Ships	315	271	+ 44	7,022	6,426	+ 596
Total Passengers ...	20,502	20,104	+ 398	245,891	238,522	+ 7,369
Freight, Parcels & Mails—						
British Railways :						
Merchandise & livestock	8,502	8,316	+ 186	82,168	87,625	− 5,457
Minerals	3,897	3,523	+ 374	36,886	38,084	− 1,198
Coal & coke ...	8,648	9,294	− 646	91,053	103,078	− 12,025
Parcels, etc., by coaching train ...	4,388	4,256	+ 132	45,206	44,559	+ 647
Total Freight, British Railways	25,435	25,389	+ 46	255,313	273,346	− 18,033
Others*	4,783	4,357	+ 426	47,016	45,598	+ 1,418
Total Freight, Parcels, & Mails	30,218	29,746	+ 472	302,329	318,944	− 16,615
Total	50,720	49,850	+ 870	548,220	557,466	− 9,246

*Road haulage, ships, and inland waterways freight

In passenger traffic the increase for British Railways was not great. The recent rise in fares should result in considerably increased receipts for Period 12, which began the day after the new fares came into force.

London Transport road traffic receipts at £4,327,000 are down on the previous four weeks (£4,437,000), but the Underground shows an increase (£1,906,000, compared with £1,794,000). The provincial and Scottish bus undertakings did not do as well as in Period 10, partly because of the end of the summer season for excursions, and partly because of competition from private transport and in some cases, it is reported, of improvements in competing railway services. The rise in ships' passenger receipts was marked. It would be interesting to know from which services the increase was mainly derived.

At £548,220,000 the aggregate traffic receipts of the Commission for 44 weeks were £9,246,000 below the corresponding figure for last year. This is an improvement compared with four weeks ago, when the difference was £10,116,000.

PERCENTAGE VARIATION 1959 COMPARED WITH 1958

	Four weeks to November 1	44 weeks to November 1
British Railways:		
Passengers	+ 2·9	+ 1·6
Parcels	+ 3·1	+ 1·4
Merchandise & livestock	+ 2·2	− 6·2
Minerals	+ 10·6	− 3·1
Coal & coke	− 6·9	− 11·6
Total	+ 0·9	− 4·3
Ships (passengers)	+ 16·2	+ 9·2
British Road Services, Inland Waterways and Ships (cargo)	+ 9·7	+ 3·1
Road Passenger Transport, Provincial & Scottish	+ 0·8	+ 1·1
London Transport:		
Railways	+ 0·6	− 3·9
Road services	+ 0·6	+ 15·0
Total	+ 0·6	+ 8·6
Aggregate	+ 1·7	+ 2·0

Timely Help in a Signalling Project

DISTORTED reports have appeared in some newspapers regarding the loan of signal staff from Holland and the U.S.A. to British Railways, London Midland Region. In fact only 16 men, members of design staffs, have been seconded, a small number compared with the large number of British Railways staff engaged on the same project. The services of 10 have been lent by the Dutch manufacturers of signal equipment, Spoorweg Sein Industrie N.V., of Utrecht, and six have been seconded by railways in the U.S.A.

The original plan for the complete re-signalling associated with the electrification of the Western Division (London-Birmingham-Crewe-Liverpool-Manchester) lines of the London Midland Region envisaged completion in 10 years. The planning and execution of the work was to be effected in seven consecutive stages extending over the whole period. Stage 1 covered the section from Crewe to Manchester and the re-signalling for the greater part of this section has been completed, including route relay interlockings at Sandbach and Wilmslow, covering 27 route-miles of line and using transistorised remote control equipment for the first time, with various other novel features. The installation was described in our September 18 issue.

The adoption of the 25-kV., 50-cycle a.c. overhead system presented entirely new problems in connection with the prevention of interference by the traction current with signalling and telecommunications. This necessitated much pioneer development work by the Regional signal engineering staff and the contractors. The Styal Line (the loop from Wilmslow via Styal to Slade Lane Junction) was the first section in the country to be energised. Many trials were necessary to prove the efficiency of the new types of equipment. Certain modifications were made as a result of the experience gained and were incorporated on that branch and on the main lines between Crewe and Wilmslow on which current was recently switched in.

Re-appraisal of the electrification plan requires completion of conversion from Euston to Liverpool and Manchester in five years instead of ten. This means that all sections of the signalling work must be carried out concurrently and it necessitates the development in the next 18 months of all the re-signalling proposals throughout the whole area. Some simplification of the signalling proposals have been achieved by the postponement of the carrying out of some power schemes, but colour light signalling and track circuiting must be installed throughout. Much credit is due to the present technical staff who have taken part in the development work and the solution of many problems which will facilitate work in the future. An increase in the numbers of technical assistants to develop the signalling schemes in this much shorter period is required beyond the resources of the Region. Assistance is being given from other Regions as far as their commitments permit. In some cases, modernisation work there is being retarded. Even so, the numbers obtained are inadequate to ensure completion by the required date. Accordingly the few design staff have been seconded temporarily from overseas. The 16 men concerned have had experience in the preliminary planning of colour-light signalling schemes generally, but have not been concerned with 25-kV., 50-cycle a.c. traction, as there is none in Holland or the U.S.A. Nor are they familiar with British traffic conditions.

It is felt, however, that with their signalling experience, which will be useful in supplementing the existing resources of the Signalling Department, they can be integrated into the Regional team of trained technical staff whose immediate objective is to complete all essentail planning and development work within the next 18 months so that contracts can be placed, material ordered and site work proceed with increasing momentum to ensure the completion of all signalling and telecommunications work in accordance with the accelerated programme.

The task of the many men, qualified engineers and others, engaged on arduous work which must be completed within a time limit, is being made easier by the advent of their Dutch and American colleagues. To Spoorweg Sein Industrie N.V. and to the U.S.A. railroads concerned, British Railways and its signalling staffs owe a debt for their courtesy in affording timely help.

Impact of U.S.A. Strike on the Railroads

(By a correspondent)

THE October survey of the transport situation prepared by the Association of American Railroads shows how the steel strike has brought about a serious setback to the railway industry. In 41 weeks to October 10, wagon loadings numbered 24,436,000. That was an increase of 905,870, or nearly 4 per cent, on the poor year 1958, but 4,189,200, or 15 per cent, behind the busy year 1957. By that time the steel strike had lasted 88 days and lost the railroads about 2,000,000 wagon-loads of revenue freight.

But for the strike, the railroads would have prospered in 1959. For 41 weeks box wagon loadings totalled 10,277,000, an increase on last year of 207,000, or 2 per cent. Grain loadings were down 84,000, or 4 per cent from the record level of 1958. Forest products, however, filled 167,600 more box wagons, an increase of 11 per cent in traffic which gives a wagon-load of 38 short tons. There was also a rise of over 1,000,000, or 9 per cent, in the forwarding of wagons loaded with general merchandise, which on an average carry 32 tons and earn gross revenue of about $386.

Covered hopper wagons are now in keen demand; 882,220 were loaded, 132,000, or 17 per cent, more than a year ago. Nearly 30 per cent more flat wagons were forwarded; the total number loaded was 770,085 road trailers being carried on 323,250 flat wagons compared with 208,210 in 1958.

On the other side of the account a large number of wagons suitable for use in steel plants was idle. Coal output was one per cent lower than a year ago and the pits loaded 41,060 fewer wagons. At October 1, the tonnage of overseas export coal was 35 per cent lower, a loss of 10,802,000 tons to the coal carrying railroads. Rail movement of ore this year was less by 101,000 wagon loads, or 7 per cent, than in 1958 and little more than half of the heavy movement in 1957.

The effect of these changes in traffic volume on the financial position of the railroads became more serious as time passed. The first half of this year was a time of promise. Freight revenue, which is about 85 per cent of total operating revenues, was $445 million, or 11 per cent, higher than in 1958. For the month of June freight revenue was up $99 million, or 15 per cent. July showed an increase of only $38 million, or 6 per cent, while August brought a decrease of $57 million, or 8 per cent. For eight months the rise in freight revenue dropped to $426 million, or 8 per cent. September would bring a further fall and it is estimated that in October the decline continued at the rate of between five and six million dollars a day. The September and October statements of railway revenues and expenses are sure to be cheerless papers.

Meanwhile the recession in financial resources, with the lack of adequate supplies of steel, is hindering wagon building and repair programmes. On October 1 the railroads had 41,500 new wagons on order and 144,040 wagons, or 8·5 per cent of their fleet under repair. Their serviceable stock totalled 1,551,230, about 40,400 less than a year ago. Unless special steps are taken to strengthen the wagon stock, the railroads may not be equipped to cope with any upsurge in traffic resulting from the 80 day truce in the steel strike or from a final settlement of this long labour dispute.

XUM

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of Correspondents)

Multiple-Unit Electric Boat Trains

October 29

SIR,—I was interested in comments in your October 16 issue on Southern Region multiple-unit electric boat trains to Dover. I have recently travelled in the Ostend train mentioned. I agree with most of what you say. I still feel that these trains are rough riding compared with locomotive-hauled trains. In addition luggage rack accommodation is very poor.

If it is proposed to continue to use such trains, surely there should be sufficient demand for the stock to have some built with more accommodation, preferably in the form of luggage racks at the end of each coach, say, near the toilet.

Yours faithfully,

J. B. LATHAM

Channings, Kettlewell Hill, Woking, Surrey

Selection and Training of Railway Staff

November 17

SIR,—In his letter in your November 13 issue, Mr. Robert W. Lewis criticised me for not saying how we should avoid passing over keen, intelligent, and ambitious men. He suggested that the remedy lay in the Railway Executive, and I presume he would now say that the British Transport Commission should take a direct interest in each individual, reviewing his progress and ensuring that he obtains suitable promotion.

May I quote from my paper, " . . . it is the first and most important duty of every man who controls staff, from the General Manager downwards, to take a live personal interest in the selection, training and development of the people in his charge." And again, " . . . an officer with authority and far-reaching responsibilities must delegate the day-to-day application of his policies, but people are much more important than things. The chief must always have his staff in mind as his own first responsibility."

I made those statements at the beginning of my paper, and later on, when dealing with training, I said, " the success of this early training must depend in considerable measure upon the quality of, and interest shown by, the immediate chief, be he agent, station, yard or depot master, or section chief. This question *must* have his personal attention." And yet again, " . . . it is the positive duty of all those at each of the various levels of authority to ensure that young men of promise are given the opportunity they deserve."

There was further emphasis upon the importance of this matter in the last part of the paper entitled, " Further Promotion."

I agree entirely that the British Transport Commission should take a direct interest in this all-important matter. I know that they are doing this. But it cannot rest there. There must be a close personal interest at all levels of Regional management; if there is, we shall secure the men we want.

Yours faithfully,

H. C. JOHNSON,
General Manager,

British Railways, Eastern Region,
Liverpool Street Station, E.C.2

Passenger Fares and Travel Comfort

November 13

SIR,—I was interested in the reference in your November 13 issue to the paper in which Mr. T. A. Germaine spoke of the small extent to which passenger charges had risen, and made certain comparisons between the single fares of 1928 and 1959.

It would have presented a more faithful picture if he had compared the return fares (monthly) issued for many years before 1939. For some time in the 1930's while the single fare was indeed 1½d., the return, at single fare *plus* one-third, worked out at only 1d. a mile, except over long journeys; the single fare is now 2¼d. a mile and there is no reduction on return tickets, so that the figure of 50 per cent given in the paper is far below the truth of the matter.

This kind of statement seems to me to betoken a certain lack of candour which is apt to creep into British Railways announcements. For instance, the other day when increases in season ticket rates were announced these were quoted as " 4 to about 15 " per cent. I have the best of reasons for knowing that in some cases the increase is 17 per cent and I suspect that in others it is even more. This tends to breed distrust of all railway announcements, which would no doubt be unfair.

In the same issue (page 415) there is a reference to "the speed and comfort of the train " compared with the motorcoach. I say nothing about speed, but the last motorcoach in which I travelled was infinitely more comfortable and smooth running in every way than the first, let alone the second, class carriages of the Hastings diesel-electric trains. These products of railway modernisation are perhaps a rather extreme example—but it would be rash for British Railways and its staff to assume that the train is necessarily, or normally, more comfortable than the coach.

Yours faithfully,

EDWARD BAGSHAWE

Brockfield, Wadhurst, Sussex

Seat Reservation

November 9

SIR,—All seats in the " Royal Scot " and " Mid-Day Scot " of British Railways, London Midland Region, between Euston and Glasgow Central, are now bookable. There is now no day train between these points by which one can travel if one has not booked a seat in advance. One is forced to pay a surcharge (the seat reservation fee) of 2s. Many travellers cannot predict their movements days or weeks in advance. There are the alternatives of changing at Crewe and Motherwell and of travel by the former Midland Railway route. But why should one have to do this ? Seats are bookable only from London and Glasgow. What are passengers from Crewe or Carlisle expected to do ?

Yours faithfully,

I. S. PEARSALL

5, Brenfield Drive, Glasgow, S.4

L.M. Region Express Services

November 10

SIR,—It is not clear just what object is served by " pie in the sky " pronouncements on the part of British Transport Commission and British Railways officials. On page 386 of your November 6 issue you quote one such, to the effect that it was intended to run the principal expresses at an average of 75 m.p.h. start to stop. Yet on page 390 we are told that when the London Midland Region electrification is completed, the London-Liverpool journey will be done in just under 3 hr., or at 65 m.p.h. As most of the larger locomotives being provided under the modernisation plan have little more than half the effective output of the electric locomotives, it would be interesting to know just how and where the promised result is going to be attained.

It would also be interesting to know just why all the heavy civil engineering work you mention, the deepening of ballast and the general strengthening of the track, should be necessary to attain a result not as good as that attained by the London & North Eastern Railway before the last war.

Yours faithfully,

L. IRVINE-BROWN

Ivydene, Tilston, Malpas, Cheshire

[The Euston-Liverpool timing of just under 3 hr. for the 193½ miles is to apply after electrification of the whole route. Continuous rating of the electric express locomotives is 3,300 h.p. Our correspondent presumably has in mind the East Coast main line of the former L.N.E.R. This differs in several respects from the Euston to Crewe, Liverpool, Manchester, and Carlisle lines of the London Midland Region. The many fast and heavy trains planned to run after electrification are expected to afford services better than anything provided hitherto over comparable routes.—ED., *R.G.*]

THE SCRAP HEAP

Former L. & Y.R. Locomotives Withdrawn

The last of 50 Class "2," 0-6-0 freight tender locomotives, No. 52044, built in 1887 for the former Lancashire & Yorkshire Railway, has been withdrawn from service on British Railways, London Midland Region. It was one of 30 supplied by Beyer Peacock & Co. Ltd. The other 20 were built by Vulcan Foundry Limited. The design was by Mr. Barton Wright. Originally No. 52044 was numbered 957. The boiler pressure was 140 lb. per sq. in., the cylinders 17½ in. dia. x 26 in. stroke, and the wheel dia. 4 ft. 5⅞ in. Weight of the locomotive and tender in working order was 67 tons and the tractive effort 17,580 lb. at 85 per cent boiler pressure. Stephenson link motion was used. Equipment included water pick-up gear and gravity-feed lubrication.

Recently withdrawn from service on the London Midland Region, the last of 50 Class "2" goods locomotives built by Beyer Peacock & Co. Ltd. and Vulcan Foundry Limited for the former Lancashire & Yorkshire Railway

Automatism at Mansion House

"So successful has the ticket delivery machine proved at Mansion House Station that machines are to be installed at other stations throughout the Underground service," said the *Evening News* in November, 1909. It quoted Mr. W. E. Soar of the District Railway as saying that "the machine will never quite take the place of booking clerks, because so many people require change." The coin-operated machine was in essence the same as that already used for the delivery of chocolate bars, the first of which was installed—also at Mansion House Station—in July, 1886.

"Norwich City" Nameplate

The nameplate off the steam locomotive *Norwich City* which was in service on the London & North Eastern Railway, on what is now the Great Eastern Line of British Railways, Eastern Region, from 1933 until 1959, has been presented to Norwich City Football Club by the Great Eastern Line of British Railways. This is in recognition of the outstanding performance by the club in the 1958-59 Football Association Cup competition. The nameplate has been mounted above the main entrance to the ground and was unveiled by Mr. W. G. Thorpe, Line Traffic Manager, Great Eastern Line, at a recent ceremony.

Journey into the Unknown

"Do you enjoy a book of mystery and imagination? One that keeps you guessing to the very last page? Leaves you with the feeling there are some things which will never be clearly understood?

"You do?

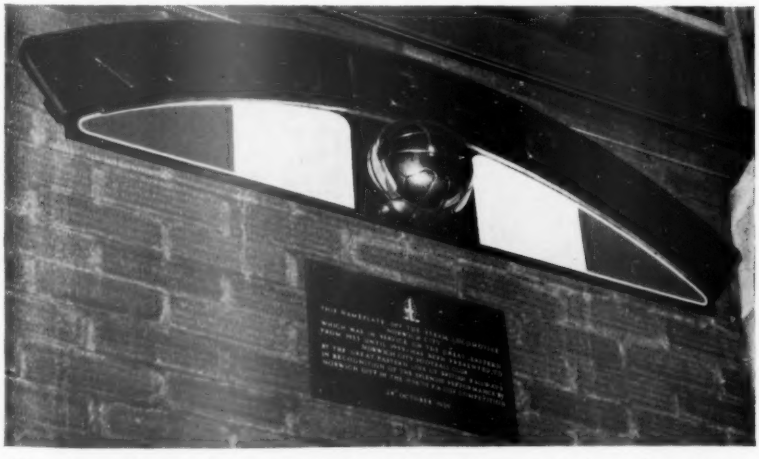
"In that case, I can strongly recommend you to British Railways Passenger Timetables."—Paraphrased from a B.B.C. radio programme.

Passenger Travel Prophecy (1908)

Lord Claud Hamilton, the Chairman of the Great Eastern Railway, whom I met in the Park today, is most pessimistic about the future of the railways in this country. He attributes much of the falling-off of revenue to the growing competition of tramways and motor vehicles. The suburban traffic of his line, for instance, has dropped by £36,000 . . . The time will come, he thinks, when most people will go to and from their work by motors or trams, though I cannot see how this can be done in view of the narrow and congested roads, which were not built for motor traffic. Judging by the constant motor breakdowns I should say that Lord Claud is unduly pessimistic.—*From the entry for February 2, 1908, in the diary of R. D. Blumenfeld* ("*R.D.B.'s Diary*, 1887-1914").

Pennies from the Slot

Receiving largesse from London Transport slot machines is not so common as to fail to cause some slight surprise in the recipient. One traveller was, therefore, agreeably astonished to receive an extra penny for the second time in 10 days at Knightsbridge Underground station. The point of view of the London Transport Executive is that this kind of thing happens only rarely and that, when it does, it is regrettable . . . What if one day he were to be showered with pennies? In this country he is unlikely to suffer the fate of the unfortunate New Yorker who, on putting his money in the slot for a cup of coffee and a packet of peanuts, was instantly buried under a mound of nuts and drenched with scalding liquid.—*From "The Guardian."*



Nameplate of steam locomotive "Norwich City" mounted above the entrance to Norwich City Football Club

Nautical Language on Railways

A traveller on the Grand Trunk Railway of Canada in 1861 wrote: "The conductors generally are civil fellows, but fearfully offhand—a manner engendered by the heterogeneous medley of mankind with whom they have to treat and converse. They have a curious word of command for summoning passengers in and out of the trains, 'All aboard' and 'All ashore.' This I discovered, after many inquiries, originated in the fact that before the Grand Trunk Railway was invented all the traffic was by barges on the canals, and these were the captains' words of command; and the said captains, oddly enough being in many cases on the conclusion of the railroad transmogrified into railway guards and conductors, retained their nautical vocabulary. Wood is used instead of coal, the smuts being intolerable; the speed seldom attains 25 m.p.h."

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

New Rolling Stock

Twenty-four electric locomotives class "5E" and class "5E-1" were placed in service by the South African Railways during the three months, July, August, and September, 1959. In addition, 18 new electric coaches for suburban services were added to the establishment while new goods stock totalled 2,185 units. During the quarter, four locomotives, 21 passenger coaches and 935 goods wagons were retired from service and scrapped.

Conducted Tours for Rugby Followers

South African Railways is planning two conducted air-rail-road tours of South Africa and Rhodesia, each of two months' duration, especially for New Zealanders, during the visit of the "All Blacks" rugby side to South Africa next year. The tours will have a more comprehensive itinerary than any previously offered for conducted group tours. The cost is about £380 per person and includes hotel accommodation and guaranteed seats for the rugby matches. There will also be special flights, special motor coach journeys and special trains from Johannesburg and special excursions from the Northern Cape area, and Klerksdorp to Bloemfontein for the Third test match.

EAST AFRICA

Berths Completed at Mombasa

The last two berths to be completed at Kipevu have been handed over by the contractors to the East African Railways & Harbours engineering department. Although the berths, Nos. 13 and 14, are not yet operational, the event marked the completion of the first phase of the project which provides for four berths, each 600 ft. in length, which are designed to accommodate ocean-going vessels.

The berths will provide vessels with a minimum depth of water of 33 ft. on water or spring tide. They have not yet been provided with fenders or services, and no date is given for their coming into operation. Berths 11 and 12, which are due to come into full operation towards the end of 1960, were handed over in June complete with aprons, rail and crane tracks, fenders, and bollards.

NEW ZEALAND

Christmas Holiday Travel

Christmas bookings indicate that the holiday travel this year will create a record for the New Zealand Railways. The improved economic position of the country in recent months and the special timetables established by the Railways Department for Christmas and New Year travel are two of the reasons given for the expected busy season.

Brighter Colours for Railcars

The New Zealand Railways Department has investigated brighter colours for railcars to reduce the risk of accidents on level crossings. Mr. A. T. Gandell, General Manager, when travelling abroad recently, discussed railcar colours in various countries and found it a general difficulty in finding a colour scheme which will stand out against a constantly changing background and also resist the effects of weathering. Mr. Gandell, prompted by complaints from the West Coast, said the Midland Lake red of New Zealand railcars was adopted 19 years ago at the request of the New Zealand Motor Union, and the department was quite satisfied that it could not get any one colour which would meet all the varying backgrounds.

He said that Western Australian railways used a yellow and black combination in dazzle paint with zebra stripes, but it was understood that this combination had no noticeable effect in reducing the number of level crossing accidents. The recent practice of operating railcars and diesel engines with their headlights on followed the practice adopted on the American railroads. The purpose of the light was to give added warning at level crossings and also to improve visibility for railway surfacemen working on the tracks.

CANADA

Demand for Wage Increases

The non-operating railway unions have presented to the railways demands for wage increases averaging 25 cents per hr. for their 135,000 members. The cost of the increase, based on previous calculations by the railways, would be some $67,000,000. A total of 15 unions are involved and the agreement would be for two years, beginning January 1, 1960.

UNITED STATES

Costly "Piggyback" Preparations

The carriage of covered road lorries on flat railway wagons, or "piggyback" transport, as it is generally known in the U.S.A., is providing some railways with problems not greatly dissimilar from those which British Railways are facing in obtaining sufficient clearance above its tracks for 25-kV. electrification. The New York, New Haven & Hartford Railroad currently is spending $200,000 in lowering tracks through tunnels, raising overbridges, moving overline signal gantries, and raising overhead electric conductors, to accommodate the loaded flat wagons. When the work is completed, between New Haven and Maybrook freight yards, New York, it will be possible to run covered lorries up to 12 ft. 6 in. in height above road level on standard flat wagons with floors 3 ft. 8 in. above rail level.

Transporting New Motorcars by Rail

As in Great Britain, increasing interest is being shown by the leading United States motorcar manufacturers in the delivery of new cars by rail rather than depreciating the new quality of the cars by lengthy road movment under their own power. General Motors, Chrysler and Ford all have made some recent deliveries by rail, and there are signs that the business will increase.

Tariffs for this class of transport

Track Inspection on the Canadian Pacific Railway

"Hy-Rail" road-rail track inspection car used by the general superintendent over the 1,661 miles of track in the British Columbia district, C.P.R. The flanged steel wheels are hydraulically raised or lowered

already are established in some areas, such as the Pacific North-West and in a wide area to the south from St. Louis. The method of transport is a kind of "piggyback-on-piggyback;" that is to say, the new cars are loaded on to road trailers, which in their turn are loaded on to flat wagons for the railway journey; on arrival the road trailers are moved by tractor to the car distributor who is taking delivery. In the north-western states the new rates, which are in dollars per vehicle, apply to a minimum of eight motorcars per flat wagon, mounted in fours on two trailers.

The small movement of motorcars by rail until recently was mainly in box wagons, but the increasing interest now being displayed in this form of motorcar transport is prompting the design of special types of flat wagon, such as the Clejan wagon used in association with special Clejan loading and unloading ramps.

BRAZIL

Unification of Rio Suburban Lines

The recommendations of the commission appointed to study the unification of the Central Brazil and Leopoldina suburban services at Rio have been approved by the President of the Republic. The Leopoldina will be electrified, and 5-ft. 3-in. gauge track laid, between Rio and Caxias. All incoming suburban passengers will arrive at the Dom Pedro II Station, but outgoing passengers will embark at a station to be built nearby, at Sao Diogo. The present confusion, caused by simultaneous arrivals and departures, will thus be avoided.

The Barao de Maua Station will serve passengers to and from the interior by E. F. Leopoldina, Central Brazil, and Linha Auxiliar. The latter's signalling system will be replaced by C.T.C., under one operator, to protect train movements between Francisco Sa and Pavuna, including the Arara, Deodoro, and Sao Mateus branches.

The cost of the work is estimated at 1,500 million cruzeiros, including building of stations, signalling cabins, and bridges.

The Leopoldina Railway suburban service comprises 150 trains daily, carrying 50,000 passengers in each direction. Diesel-electric locomotives supply the motive power but the rolling stock, now to be replaced, consists of old wooden wagons.

FRANCE

Automatic-Discharge Coal Wagon

At the request of the French Electricity Authority, the Arbel Company has constructed a new type of hopper coal wagon. The vehicle is made of galvanised steel. The body is specially designed to permit coal to run easily. The tare about 10¾ *tonnes* and capacity 29 *tonnes*. When the wagon is loaded the traps are secured by bolts. For unloading, the bolts are drawn manually (though it is hoped to make this operation automatic later) and the weight of this coal opens the traps which, by means of a system of rods, activate a double jack. Oil is then forced into a bottle where it compresses nitrogen gas, a valve stopping the oil from flowing back. When unloading is complete the valve is opened, the oil is forced back to the jack by the action of the nitrogen, and thus closes the traps.

S.N.C.F. Finances in 1958

The deficit on the S.N.C.F. operating account in 1958 totalled 30,000 million francs (£22,000,000), an increase of 8,000 million francs (£6,000,000) over 1957. Operating receipts for 1958, officially returned as 729,000 million francs (£535,000,000) include payments of 166,000 million francs (£122,000,000) by the State covering such items as compensation for refusal of permission to raise rates, or in respect of rates reduced for State social purposes, upkeep of permanent way, and pensions of certain categories of retired personnel. Operating expenses totalled 759,000 million francs (£557,000,000).

ITALY

Five-Year Plan

Speaking of the realisation of the State Railways five-year plan now in progress, Signor Angelini, the Italian Minister of Transport, stated recently that the plan's first phase, now in full swing, will be followed by a second phase envisaging the addition to the present stock of 550 passenger coaches, 100 railcars, and 6,000 goods wagons. The expenditure, Lire 125,000 million, has already been approved.

Publications Received

A Handbook on Roller-Bearing Axleboxes.—A 172-page publication giving information on the most common types of axlebox designs fitted with SKF self-aligning spherical roller bearings has been issued by the Skefko Ball Bearing Co. Ltd. Advice is given on the selection of axleboxes for new rolling stock, including locomotives, and for conversion of existing plain-bearing vehicles without modification to frames and axleguards. The handbook includes 50 pages of illustrations showing typical applications on railways throughout the world. These are sub-divided into sections on steam, diesel, and electric locomotives, railcars, and coaches. A further section illustrating wagons fitted with roller bearings includes many special types of tank and hopper wagon, and a 118-ton rotary snow plough. The book lists the advantages claimed for spherical roller bearing axleboxes. They include an ability to carry high radial and shock loads or temporary overloading, a reduction of fitting time, the availability of withdrawal sleeves which also allow the journal to be machined to a coarser tolerance, reduced lubrication maintenance, and the elimination of shaft turning when shopping vehicles. Other main advantages are the reduction of starting resistance by as much as 85 per cent leading to economies in motive power, and the removal of the danger of hot boxes. There are many tables of dimensions and loading particulars for a variety of axlebox designs to meet most railway requirements and these are accompanied by clear diagrams of typical bearing schemes.

Signalling for Railway Modernisation.—A 36-page illustrated booklet issued by the Westinghouse Brake & Signal Co. Ltd., 82 York Way, London, N.1, is a concise review of the work in hand or lately completed by this firm for all Regions of British Railways under the modernisation plan, for the London Transport Executive, and for certain overseas lines. The work includes many considerable relay interlocking installations, such as those at Newcastle Central, and Manchester London Road, with remote control between Crewe and a point near Manchester, also much resignalling for the Eastern Region lines now being electrified on the 50 cycle a.c. system, or converted thereto. Other installations mentioned are the large marshalling yards at Temple Mills and Perth. Extensive re-signalling of the East Coast main line north of Newcastle is referred to, and much power equipment being supplied for installations at Newport and Plymouth. The work for the London Transport Underground covers interlocking and programme machines and some special train depot apparatus. Contracts overseas include both power lever frames and relay interlocking, of more than one type, for Bloemfontein-Cape Town and Pretoria, with double, wire mechanical signalling, also tokenless single-line block and double-line interlocking block for East Africa, Ghana, and Nigeria, with a large relay interlocking installation for India and equipment for Argentina.

British Standard for Tapered-Roller Bearings.—A new British Standard publication, B.S.3134 : 1959, Dimensions of Tapered-Roller Bearings, is intended as a guide to manufacturers and users in the choice of bearings of both inch and metric sizes. It is a 17-page specification containing 14 dimensional tables, the majority of which are presented in association with "keyed" diagrams. The dimensions in all but two of the tables conform to the proposals submitted for the preparation of an I.S.O. international recommendation. Copies, price 5s., may be obtained from the British Standards Institution, 2, Park Street, London, W.1.

This is TI To-day—1959/60.—A new edition of this booklet condenses into 14 pages the home and overseas subsidiary and associate companies of Tube Investments Limited and gives details of products manufactured in the United Kingdom. Copies are available from Tube Investments Limited, The Adelphi, London, W.C.2.

XUM

Improvements to Melbourne Suburban Lines

Progress by the Victorian Government Railways on projects over a wide area

IMPROVEMENTS by Victorian Railways are taking place on several of the Melbourne suburban lines. Many of them are long advocated projects, and although activity has at times been slowed down owing to financial considerations, headway is being made.

Twenty-three miles east of Melbourne progress is taking place with the task of extending the present Melbourne-Ferntree Gully line to Belgrave. In reality the project consists of regrading, re-aligning, electrifying and broadening the first three miles of what was previously a narrow-gauge mountain railway which ran for 18 miles into the Dandenong Ranges. Included also is the building of new stations and bridges. An important feature of the project is that there are to be no level crossings.

Former narrow-gauge trains, on leaving Ferntree Gully, immediately commenced climbing and had to negotiate two sharp curves, on one of which was a main road level crossing. Then began a steady pull up a 1 in 30 grade along a hillside and through a cutting into Upwey, the next station. In a distance of a little over a mile the line had risen about 260 ft.

The new track is to be re-aligned to avoid the initial curves and level crossing. It will be carried in a south-easterly direction across to the hillside on an embankment which has recently been completed. The broad-gauge line will then use the old route into Upwey.

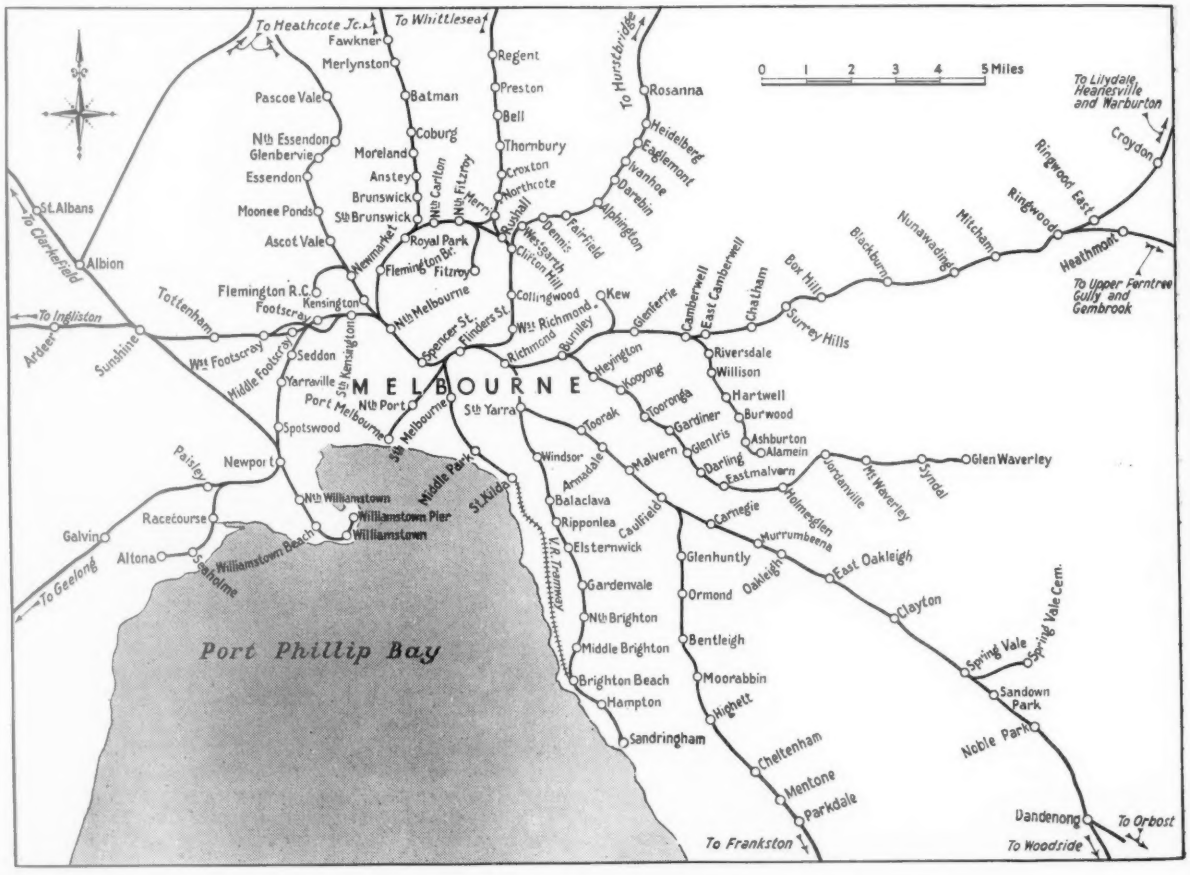
Bridge Reconstruction

At the beginning of this new embankment concrete abutments for the future bridge over the main road have been completed. These are about 30 ch. beyond the Ferntree Gully Station where the new route branches away from the old. Steel work has not yet been commenced on the bridge. On the Melbourne side of Upwey, a timber bridge for road traffic, which spanned the narrow gauge track at the head of the cutting is being replaced by a modern steel and concrete one, 110 ft. long. The abutments have been completed and most of the steel superstructure is already in place.

The cutting is being deepened and more earthwork will be necessary for widening it in the vicinity of the new bridge. Beyond Upwey one of the old timber bridges is being replaced by a 90-ft. long double-barrelled culvert. Spoil from the cutting is being used for new embankments and earthwork is proceeding on other portions of the route between Upwey through Tecoma to Belgrave. At Belgrave the whole of the area, formerly occupied by the old station, has been cleared in preparation for the new island platform station and sidings. Entry of the new track into Belgrave will be through a small cutting.

Extensive re-arrangement is planned for the Ferntree Gully Station yard where formerly part of the area was needed for narrow-gauge track. Present work on the project is under the control of the Chief Engineer for Railway Construction whose staff is building the bridges of which there are three more to be erected. Earthworks for the whole scheme are in the hands of private contractors.

There is a desire among many people living in the hills beyond Belgrave that



Map of the Melbourne suburban area, Victorian Government Railways

Photo] [Guy Bakewell

New island platforms at Richmond Station. The one on the left serves the Caulfield group of lines, and the one on the right is for Sandringham and Broadmeadows trains

the line should be extended further—to Emerald or Gembrook. One proposal was to extend it another 14 miles to connect with the Gippsland system. It seems unlikely that any further extension will be approved by the Government at present.

Camberwell—Hawthorn Area

On the same eastern line, but within a distance of only six miles from Melbourne, work at present in hand is the construction of a fly-over between Camberwell and East Camberwell for down Alamein branch line trains and the provision of a third track for two-way operation between East Camberwell and Melbourne. The concrete work on the fly-over is nearly completed, but track laying has not commenced yet.

Preliminary work has been done at the East Camberwell station in preparation for the third track. Station buildings have been re-positioned on the up platform which will eventually become an island one. They were moved 5 ft. from their original location by rollers. The overhead footbridge has been dismantled and replaced by a pedestrian subway giving access to the future island platform.

About a mile further on towards Melbourne at Camberwell the line runs in a cutting just after leaving the station. As it approaches Auburn it emerges on to an embankment which continues past Glenferrie nearly into Hawthorn, a distance of about 2½ miles. For a number of years spoil from other works has been used to widen this embankment for the future third track.

Activity in this connection is again taking place for recently a power shovel and other equipment has been expanding the cutting in the vicinity of Camberwell on the Melbourne side of the station, and the spoil used for the embankment. As the cutting at Camberwell is being widened a substantial concrete retaining wall is taking shape on the south side of the line. Between Camberwell and Hawthorn the embanked line crosses four bridges. New bridges alongside the existing ones will be required where the embankment has been completed. Substructures for these have been completed.

Extension of a pedestrian subway at Auburn and abutments for another one at Glenferrie have also been finished.

Richmond Station Reconstruction

A further stage in the reconstruction of Richmond Station was reached on May 31 last when the second island platform was brought into use serving the Caulfield group of lines. At the same time the old Caulfield platforms were taken out of use and are being demolished. The Box Hill and Glen Waverley lines are the only ones now using the old station platforms.

The first platform to be used at the new station was the island one for the Sandringham and Broadmeadows trains. This was brought into use on November 30 last year. On each of the island platforms are two double cantilever verandahs to shelter waiting passengers. They have seating accommodation and anti-draught windscreens are being fitted. The new platforms are above ground level and are approached by ramps or stairs.

Main and interchange subways are tiled throughout in grey and ramps or stairs leading to each platform will be tiled in a distinctive colour. This will enable passengers to identify their platforms by a particular colour and not rely solely on number identification. The remaining portion of the old underline bridge west of the former station is being demolished in preparation for the new structure.

Fawkner-Somerton Reconditioning

An unused section of line about five miles long from Fawkner to Somerton directly north of Melbourne has been re-opened and is being electrified. This suburban line was double track from Melbourne to Coburg and single from there to Fawkner. The latter section has now been doubled and was opened for traffic in July. Island platforms have been built at Batman and Merlynston, two intermediate stations.

The formerly unused track from Fawkner to Somerton has been reconditioned and electrification has been completed from Fawkner to North Campbellfield, about half-way, where a platform and station buildings have been erected. The new station is to be called Upfield. The former name was rejected because of its length and the possibility of another station being built between it and Cambellfield.

Upfield, as well as serving employees of the Ford Motor Company nearby, will assist in industrial development of the area. Passenger trains commenced

(*Continued on page* 454)

Photo] [Guy Bakewell

Former narrow-gauge railway cutting near Upwey, showing new steel and concrete overline bridge replacing timber bridge behind

XUM

Machine Tool Replacements in B.R. Workshops

High-speed dual- and single-purpose machines installed to replace obsolescent equipment

Accessibility of controls and electric cross-slide lock on the Stirk planer reduce idle time to a minimum

FOR the building of diesel locomotives for British Railways much of the existing plant used for steam locomotive construction is both out of date and of unsuitable capacity. In the replacement of this obsolescent plant, high capacity single-purpose and dual-purpose machines of the latest types are being installed.

In the Derby locomotive works of the London Midland Region, British Railways, the recent re-equipping of sections of the light and heavy machine shops is already showing a substantial speed-up in production and a corresponding reduction in costs. For the production of frame and bogie members and similar bulky components a large Innocenti-CWB milling and boring machine has been installed. In addition to the high cutting speed, this type of machine shows large savings in setting-up times. The cutters, operating horizontally or vertically, have a 50-ft. travel along the bed, normally enabling the whole of the machining to be done at one work setting. Also in the heavy machinery section is a Stirk all-electric planer, fitted with four tool-boxes and provision for a milling head attachment with power feed.

Innocenti Milling & Boring Machine

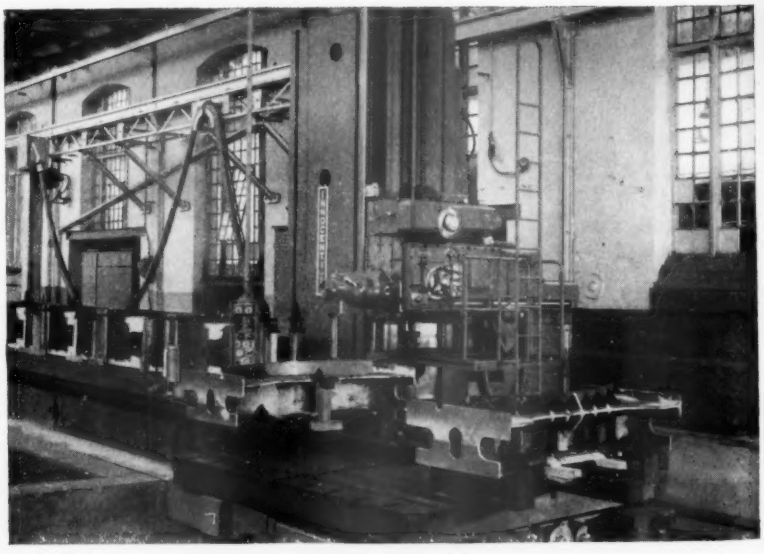
These versatile machines are built on unit-construction principles and assembled to suit the particular needs of the customer. The main elements of the machine are a massive vertical column arranged to slide along a bed running parallel to the work table. To facilitate work loading and to provide a convenient operating height the bed is sunk well below floor level. On the end face of the column is mounted a movable headstock carrying the cutters, and inside the column are the spindle drive motor, feed motors, and gearing. At the end of the fixed work table is a power-operated rotary table.

The column and main members are of rectangular box form, incorporating a patented form of triangular ribbing stated to minimise temperature and load stresses. Concentric with the boring spindle is a sleeve to accommodate milling cutters, mounted either directly on the sleeve or on a faceplate driven by the sleeve. This ensures that no side thrust is taken by the centre spindle, which is used only for drilling and boring.

In addition to milling cutters, the faceplate is also used for the attachment of a turret head for batch production jobs, right-angle heads, universal heads, and a variety of other attachments. The spindle has a taper socket for centering the boring tools which are clamped by a ring nut. To eliminate milling cutter overhang a feed is provided on the headstock slide to enable this to be brought up close to the work.

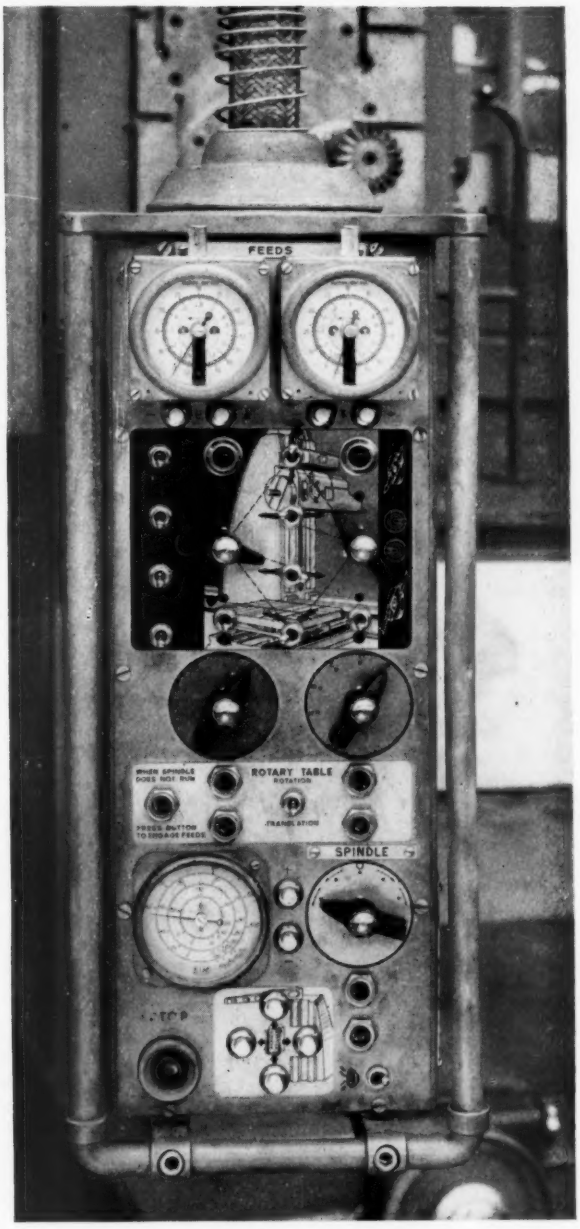
Special provision has been made, by use of a load-balancing device, to ensure that heavy tool loads or overhang of the headstock do not increase the load on the feed mechanism, or squeeze out the oil film from the slide. These devices, by eliminating any sagging of the tools, ensure a high degree of accuracy in setting and machining. The weight of the equipment carried on the vertical slide is balanced by a larger-diameter hydraulic jack. A variable delivery pump is fitted and the lifting power of the jack is readily adjusted to balance the tool load, thus maintaining a sensitive control of the feed.

The power for cutting and all traversing and feeding operations is supplied by stepless variable-speed d.c. motors. This arrangement eliminates the conventional gearboxes and enables the machine to be operated at the maximum capacity



Radius milling of bogie components on Innocenti machine using rotary table and right-angle cutter head. Note looped flexible cable against wall

Operator positioning cutter for machining locomotive side frame horn guides. Control pendant runs in boom above



Pictorial diagram, showing control movement direction, below feed speed indicators on Innocenti pendant face

of the work and the tools. A motor-generator set is used for the d.c. supply.

The spindles are powered by a 25-h.p. motor and each feed motion by a 5-h.p. motor. Spindle speeds are variable between 6 r.p.m. and 1,000 r.p.m. and all feed motions variable between 0.025 and 63 in. per min. The rapid traverse speed is 87 in. per min. The spindle has a vertical travel of 120 in., a travel along the bed of 50 ft., and a longitudinal travel in the axis of the spindle of 39⅜ in. A further 15¾ in. travel is available in the headstock.

An important feature which contributes to the high speed operation of the machine is the control system. All controls are centralised in a pendant control box. This is mounted on a radius arm and the box may be positioned by a motor actuator at any suitable working height or position over the bed. On the face of the box is a diagram showing the direction of movement affected by each control, the spindle speeds and rate of feed being shown on dial indicators. These controls cover engagement feed, spindle speed, working feed, rapid traverse, and fine feed, all of which may be disengaged or the speeds adjusted with the machine working. Also controlled from the pendant is a projector light which may be directed to any part of the work. If required each feed motion may be fitted with a drum commutator to allow an automatic sequence of operations to be performed.

The electro-magnetic contactors and other switchgear for the control of the motors are housed in a cubicle at the end of the bed. From the cubicle power is taken to the motors through a large multi-core flexible cable. In the centre of its span this heavy cable is looped over a free-running carriage hung from a girder. When working over the full length of the bed the cable end moves 50 ft. and this effective support arrangement removes most of the strain from the connectors. The rotary table, weighing 10 tons, is used for indexing, large

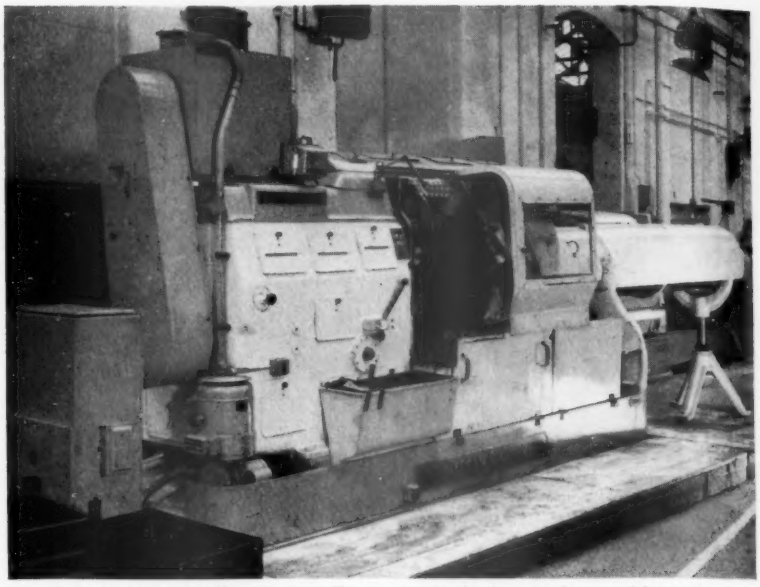
diameter turning, and circular milling. The table is self-contained and mounted on a power-driven cross-slide.

Stirk Planing Machine

This double - housing all - electric machine has been installed for the heavy duty machining of high-tensile steel castings and forgings. The table is 13 ft. long and components up to 84 in. wide x 72 in. deep can be accommodated. An electric lock is fitted to the cross-slide. The cutting speed is variable between 20 and 150 ft. per min., and the return speed variable between 100 and 150 ft. per min. Feed rate can be varied in 11 steps between $\frac{1}{64}$ in. in $\frac{3}{4}$ in.

A milling head can be fitted in place of one of the tool-boxes on the cross-beam. This head is powered by a 10-h.p. motor, with a power feed along the cross-slide and a slow milling feed to the table. Suitable interlocks are fitted to prevent the milling and planing motions being engaged together. To permit operation from either side of the machine the pendant controls are duplicated. A 57-h.p. d.c. reversing motor is fitted for the table drive.

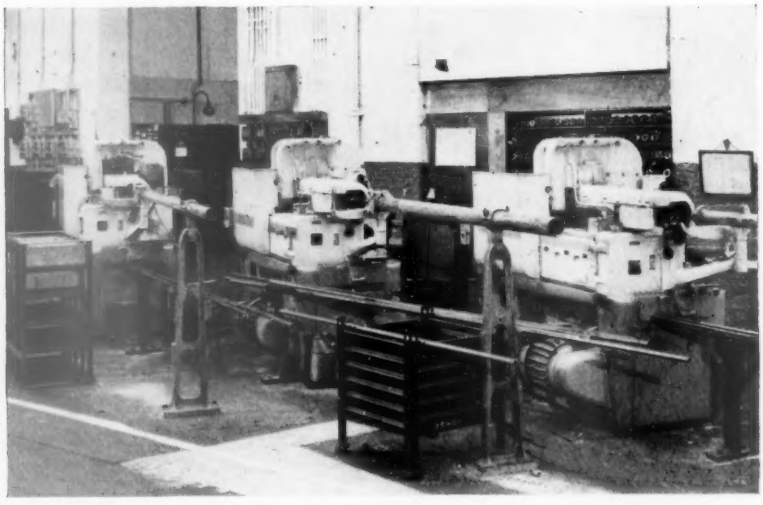
In the light machine section the production of parts machined from bar material has been speeded up and costs reduced by the installation of a number of bar automatics supplied by B.S.A. Tools Limited. The largest machine is a Acme-Gridley six-spindle automatic suitable for bar up to $2\frac{5}{8}$-in. dia. Powered by a top-mounted 40-h.p. squirrel cage motor with push-button control, this machine is typical of the robust design required to produce accurate work at the cutting speeds possible with modern tooling. A power feed reverse is fitted to speed up setting by eliminating hand-cranking. Heavy-duty disc and roller clutches are incorporated in the gearbox to permit rapid speed changes. Helical gears are fitted on the heavily-loaded drives. A wide range of speeds and feeds is covered with a minimum amount of gearing.



B.S.A. Acme-Gridley six-spindle automatic for bar work up to $2\frac{5}{8}$-in. dia.

Also installed is a four-spindle Acme-Gridley automatic with a bar capacity of $2\frac{1}{4}$ in. This is powered by a 20-h.p. motor, the general design being similar to the six-spindle machine.

For the production of screwed components there are four B.S.A. "L" type single-spindle automatic screw machines, two suitable for 2-in. bar stock and two for $1\frac{5}{8}$-in. bar. These are fitted with automatic speed change mechanisms which enable two forward and two reverse spindle speeds to be obtained automatically, giving a total of four spindle speeds in one cycle of the machine. Special provision is made for a rapid change-over between jobs. Each machine is powered by a 5-h.p. motor housed in the machine base.



Battery of B.S.A. single-spindle automatics used for the production of screwed components from bar material up to 2-in. dia.

Improvements to Melbourne Suburban Lines

(*Concluded from page* 451)

running for the first time from Fawkner to the new station on August 17 last. Six additional trains—two in the morning, and four in the afternoon—will also run from Fawkner to Melbourne on week days.

Rail connections have been provided to serve the private sidings of the Ford Company, whose plant the station will serve for freight purposes. These will also give the company connection with the main north-east line at Somerton. The line from Fawkner has now been connected with the goods sidings at Somerton. From these sidings trains can be switched to the main line.

At the turn of the century when the Fawkner line was originally connected to the main line, there was a signalbox at Somerton which in course of time was demolished. Once again a signalbox has been constructed beside the up main line and signals and equipment are being erected. When the standard-gauge railway goes through Somerton a short branch will be built from there to Upfield to give the Ford plant direct connection with the new line.

NEW DISTRIBUTING TERMINAL AT CARDIFF.—The Regent Oil Co. Ltd. is planning a new distributing terminal at Cardiff, on land acreage leased from the British Transport Commission on the south side of the Queen Alexandra Dock. Construction will include 30,000 tons bulk storage and facilities for receiving ocean tankers. It is hoped to complete the project early in 1961.

Diesel Maintenance Depot at Cambridge, Eastern Region

Equipment and facilities for dealing with 80 secondary-line service units

Servicing underfloor equipment from inspection pits with four working levels

THE diesel maintenance depot at Cambridge, British Railways, Eastern Region, equipped for the servicing of approximately 80 units, namely, multiple-unit sets, railbuses, and shunting locomotives, is now fully operational for diesel power in the Cambridge area. The motive power at present handled includes 35 railcars working between Cambridge and Peterborough and 36 between Cambridge and Kings Cross and in the Kings Cross suburban area, five W.M.D. railbuses (described in our May 23, 1958, issue) and 14 diesel shunters.

The railcars average 300-350 miles a day and the railbuses about 200 miles. Railcars and buses work on a five-day cycle, returning to the maintenance depot every fifth day. Stabling depots inform the Cambridge depot daily of vehicle availability, and the mileage clerk advises the depot supervisor of the examination required on each vehicle.

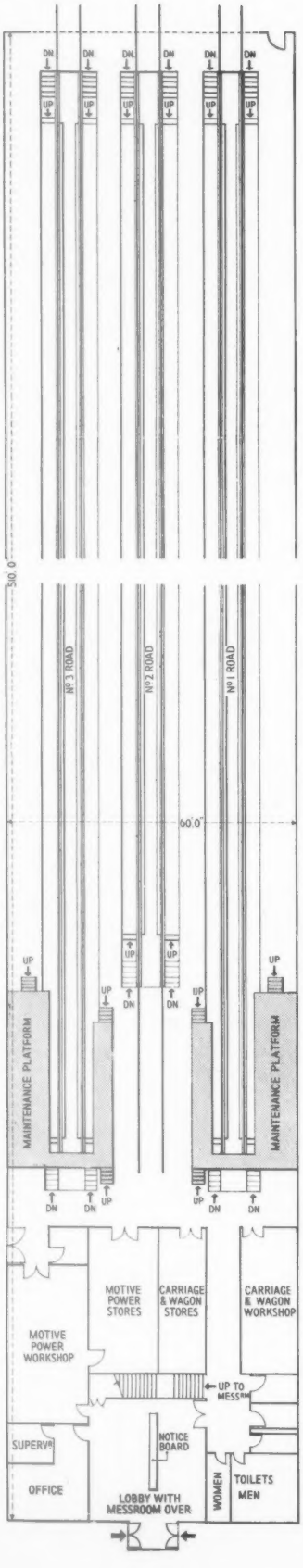
Outside the depot are two fuelling stations for railcars, and one for main-line diesel locomotives and shunters. A motorised Varley F.M.L. pumping set supplies each fuelling point. The supply is issued through Wayne-Smith meters. Fuel is stored in two 10,000-gal. tanks and lubricating oil in a heated barrel store.

The steel frame building is 510 ft. long, 60 ft. wide, and 21 ft. 6 in. high. It covers three roads, each with a full-length inspection pit. Each road can accommodate three two-car sets, one shunting locomotive, and one railbus. Natural lighting is by extensive roof glazing and three-quarter length glazing on both sides. Artificial lighting is cold cathode. The entrance end is fitted with hand- or electrically - operated roller shutters. Offices, workshops, and stores are at the inner end of the shed.

Inspection Pit

The layout of the inspection pit provides maximum working accessibility. The main floor is at rail level. Outside the rails a full-length pit 2 ft. 6 in. wide and 2 ft. 6 in. deep provides a standing position for maintenance of underfloor engines. Sliding steel plates bridging the pit give access to the cab. Between the rails the pit is 4 ft. 6 in. deep, forming a shelf along each side. Substantial steel platforms at the footplate level at the north end of Nos. 1 and 3 roads assist maintenance of shunting locomo-

Shed interior showing natural lighting by extensive glazing of the roof and side walls, also pit lighting



Plan of depot showing workshops, stores, office accommodation, and so on. Note location of steps to platforms and pits

tives. One-ton capacity hoist blocks are mounted on runways for the handling of shunting locomotive components. The pit rails are carried on concrete pillars. Lighting is tungsten, installed between the pillars. Supply points for compressed air and electricity are positioned along the pits.

Railcar engines are removed and installed by a Morris straddle-leg portable jack type crane. For the pit handling of change-speed gearboxes and final drives a 15-cwt. Newton Hydralift trolley is used. Wakefield Dick mobile trucks fitted with air-driven pumps are used in servicing railcars with engine oil, coolant, gearbox oil, greasing, and sump draining.

Maintenance of vehicle lighting, heating, coachwork and track equipment, and of wheels and axles is by the Carriage & Wagon Department. There is a separate workshop and component store for this purpose. For battery maintenance there are a Crypton Battery Booster and two portable Westalite chargers. Mains water is distilled in an electrically-heated automatic water still supplied by Mavesty Machines Limited.

Cylinder head assemblies are decarbonised and re-conditioned in the workshop as required. Engine replacements are obtained from the central depot at Stratford. Component replacements such as injectors, fuel pumps, starter motors, control and transmission components, are stored in steel cupboards.

Workshop Equipment

Workshop equipment includes Wolf electric tools for valve re-conditioning, bench grinder, power drill, cleaning tanks, and a Laycock air pressure washer. A rig has been made up in the workshop for the bench checking of gearboxes and also a rig for running starter motors and other electrical equipment. Fraser Tuson mains-operated scrubbing machines are used for depot floor and pit cleaning.

Inspections

The daily inspection of diesel railcars covers the checking of oil and water levels, correct functioning of running controls, and an external examination for loose or defective parts. Checking of change-speed gearbox and final drive oil levels and the charging of grease nipples is carried out at 1,500 miles.

At 3,000 miles the engine oil is changed, lubricating oil filters and air filters cleaned, fuel oil elements renewed, vacuum brakes checked, transmission shafts and couplings examined, and auxiliary driving belts adjusted. The electrical examination includes the voltage regulator, fuses, jumper socket connections, starter motors and pinions.

Servicing of engines at 6,000 miles includes the adjustment of tappet clearances, cylinder head nuts, synchronising of engine idling speeds, and examination of power unit suspension. Radiator elements are cleaned and a comprehensive check made of the efficiency and leakage rate of vacuum brake equipment.

At 12,000 miles the fuel injectors are cleaned and tested, fuel pump timing checked, lubricating oil filter elements renewed, and the operating mechanism checked in the final drive gearboxes. Electrical examination covers control relays and e.p. valves.

A complete examination of electrical equipment including brush gear, switches, and circuit checking is made at 36,000 miles. At this stage change-speed gearboxes and final drives are examined and adjusted for wear. Cylinder heads are changed at 48,000 miles. Fire extinguisher equipment is tested weekly.

Railbuses

The W.M.D. railbuses based on Cambridge are regarded as prototypes and provisional maintenance schedules are operated on a weekly and monthly basis. Typical items on the weekly schedule are general greasing, checking brake adjustment and operation, batteries, and inspection for pipe leakage and loose equipment.

Fortnightly tasks include change of engine lubricating oil, cleaning lubricating and fuel oil system filters, engine air filter, security of driving shafts and couplings, and a wheel and tyre examination. Fuel oil injectors are dismantled and cleaned monthly, heater radiators cleaned, and the wear of brush-gear checked on all electrical equipment. Valve tappet clearances, fuel pump timing, and cylinder head nuts are checked at two-month intervals. Compressed air brake and control valves are dismantled on a 12-month schedule.

Maintenance of Shunting Locomotives

Maintenance schedules for the diesel-mechanical shunting locomotives cover examinations at 12–16 days and also periodical examinations on a mileage basis. The fortnightly external check covers all routine adjustments, lubrication of engine and mechanical parts, and a running check of all controls and brake equipment.

At 3,000 miles the fuel injectors and tappet clearances are checked and the insulation of electrical circuits tested. Cylinder heads are de-carbonised at 6,000 miles, and pistons, cylinder liners, main and big-end bearings examined at 12,000 miles.

Heating

Heating of the depot is by high-pressure hot water, pump-circulated through radiant heat panels. Eight rows of Copperad Raystrip heater panels are suspended from the roof and further units are mounted on the walls. No pit heating is fitted. The heating boiler is an oil-fired Spanner Swirlyflo fitted with Brockhouse burners and coupled to a Spanner nitrogen pressurising unit operating at 150 lb. per sq. in. The shop temperature is thermostatically controlled by automatic operation of the boiler water and circuit water mixing valve. Two Holden & Brooke motor-driven centrifugal pumps, each with a capacity of 60 gal. per. min. circulate water.

Instruments and controls are housed in a Donovan floor-mounted control cubicle. Boiler fuel is stored in a 10,000-gal. tank, fitted with hot water and electric outflow heaters. Waste engine sump oil, stored in a 2,000-gal tank, is also used as boiler fuel.

ELECTRIC RAILWAY TRACTION SECTION

World Discussion of A.C. Electrification

NOW that high-voltage a.c. electrification is being adopted by many overseas administrations the time seems appropriate for a frank exchange of views on the developments that have taken place. Although British Railways has had limited experience with 50-cycle working it is much to its credit that it should be promoting a conference in London next year for this very purpose, to which invitations are being extended to railway officials throughout the world. French industry and the S.N.C.F. have to date been accepted as the exponents *par excellence* of a.c. electrification, benefiting directly from experiments on the Höllental line in South Germany to introduce a.c. electrification to the world. British Railways, on the other hand, has little to show in a.c. electrified mileage despite progress made in converting lines in the London Midland, Eastern, and Scottish Regions, but the problems so far encountered are formidable, and provide valuable experience which can be of great benefit to overseas railways.

The British manufacturing organisations, while co-operating with the British Transport Commission in staging the conference and associated exhibition, will take the opportunity to show visiting delegates electric locomotives and electric traction and electric supply equipment in production. It is to be hoped that this will foster interest in the achievements and skill of the British electric traction and locomotive industries to the advantage of their already high export trade.

Delegates to the conference will have ample opportunity to see what British Railways is achieving in a.c. electrification; these visits will in turn provide the basis for much interesting discussion. In the Scottish Region there are many unusual features in the Glasgow Suburban Electrification Scheme which sets it apart from other work on British Railways. It will, for instance, be the first a.c. high-voltage electric scheme to work underground in Britain involving a high percentage of 6·25-kV. route mileage. This emphasises the difficulty which British Railways engineers have to face in providing adequate clearance for a 25-kV. overhead system. The necessity to supply long stretches of line in built-up areas and through tunnels at 6·25-kV. further complicates the rolling stock equipment as automatic devices must be provided for selecting the correct transformer primary connections according to the overhead line voltage.

British industry has for some time been in the forefront of rectifier development. Since the first germanium traction rectifier in the world began to operate in a motor coach on the Lancaster–Morecambe–Heysham line of British Railways, London Midland Region, in December, 1955, considerable progress has been made in developing silicon rectifiers for similar applications. The British Thomson-Houston Co. Ltd., which built the original germanium unit, began trials with a silicon power rectifier in 1958 in the same vehicle as was used for the original germanium experiment. There is undoubtedly great promise for the air-cooled semi-conductor rectifier with its simplicity and lack of auxiliary equipment, more particularly with silicon, because of its tolerance of high temperature.

Research has also been conducted in Britain by the General Electric Co. Ltd. into the development of the single-anode mercury-arc rectifier. The ignitron has been used more widely than other types of rectifier in locomotives and motor coaches. The mode of operation of the ignitron, in which the arc is struck at each cycle from an auxiliary anode fed by a firing circuit, was considered to minimise the risk of backfires and so allow a small anode-to-cathode separation, thus not only reducing the size of the rectifier for a given duty, but also bringing the advantage of a low arc-drop. In practice the need for baffles to limit backfires has prevented the attainment of arc-drops as low as had been hoped, and so other means have been developed of combining high efficiency with small size in a mercury-arc rectifier which will stand up to the vibration inherent in railway service.

The new rectifier developed by G.E.C. is an excitron in which an improved technique of anchoring the cathode spot has enabled a small anode-to-cathode separation to be used without requiring baffles corresponding to those of the conventional ignitron for traction. It is as small as existing traction ignitrons, and has an arc-drop which is about half the best figure quoted generally for the ignitron type. This rectifier will be installed in the locomotives and motor coach equipments being supplied by G.E.C. to British Railways for 50-cycle electrification and its performance will, therefore, be followed with great interest.

These developments, dual-voltage problems, and the use of electronic analysers, are but a few of the topics which will undoubtedly provide interesting material for discussion, but of equal importance are the many set-backs which have emerged over recent years. Probably the most important of these, so far as British Railways is concerned, is the interference liable to be experienced in the various signalling and associated circuits. Much thought and many experiments have been necessary to overcome these difficulties, and large sums have been expended in cabling, providing screening devices, booster transformers and so on, and designing new track circuit apparatus. It is felt by many that the necessity to provide this additional equipment has outweighed the advantages claimed in a.c. electrification. It will be interesting to hear the opinion of other administrations on this matter.

Multi-System Electric Traction

THE problem of inter-running between different electrification systems is of immediate concern to several railways and of potential interest to many others. This is one of the questions for discussion by the New Delhi meeting of the Permanent Commission of the International Railway Congress Association next month, on the basis of reports prepared by Messrs. K. von Meyenburg of the Swiss Federal Railways and J. J. Jonkers of the Netherlands Railways. Between them the reporters have compiled detailed information on 22 examples of locomotives and motor coach stock designed for use on two to four different systems and voltages. Among the a.c./d.c. designs listed, all but one supply the motors through rectifiers on a.c. and direct from the contact wire on d.c. M. von Meyenburg comments in this connection that although the a.c. series motor will run on d.c., the maximum motor voltage on a.c. at 50 cycles should not exceed 400V., so that four or eight machines would have to be connected in series on 1,500V. or 3,000V. In their reply to the questionnaire, British Railways foresaw a requirement for locomotives able to operate on d.c. at 750V. (third rail) and a.c. at 25kV. (overhead contact wire). Here it might be possible to work a.c. series motors two in series on third-rail sections, but a rectifier system is more probable unless an unexpected advance in a.c. motor practice has taken place by the time the proposal has to be translated into reality.

An interesting trend seen in the above reports is the number of projects for which silicon rectifiers are proposed. They comprise a Japanese a.c./d.c. locomotive of 2,400 h.p., a German Federal Railway locomotive of 3,180 h.p. for three a.c. systems, the Swiss T.E.E. four-system trains to which we referred in our April 10 issue, and a 2,300 h.p. Swiss Federal Railways locomotive for goods traffic and shunting in the Geneva area, having provision for 1,500V. d.c., 15,000V., $16\frac{2}{3}$ cycles a.c., and 25kV., 50 cycles a.c. It may be noted that these are mainly single applications. So far there has been no indication of a swing towards semi-conductors of any kind on a scale comparable with the germanium installations for motor coaches and locomotives of British Railways. Although trials with a silicon rectifier on the Lancaster-Morecambe-Heysham line began in 1958, germanium was again ordered this year for the Liverpool Street—Southend motor coach conversion sets. A new assessment of the merits of germanium and silicon based on practical experience with both for traction would be welcomed by many railways and is one of the pointers to progress which may be hoped for at the British Railways Electrification Conference next year.

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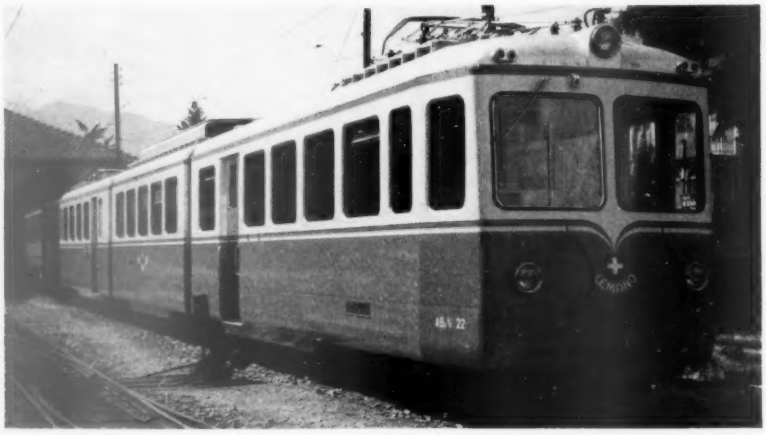
XUM

Electric Traction Section

Electric Trains for Centovalli Line

Motive power at 1,300 V.d.c for joint Swiss-Italian railway



Articulated 980-h.p. triple-car train

THE well-known Centovalli Line between Locarno and Domodossola, a metre-gauge railway of many scenic attractions, put into service during 1959 two modern triple-car electric trains to operate some of the principal services. Two further trains are being supplied. Of the 82 miles of route, 17½ are in Switzerland and 65½ in Italy; although operated as one line, the two parts of the railway are separately owned, by the Soc. Ferrovie Regionali Ticinesi for the Swiss part, and by the Soc. Subalpina di Imprese Ferroviarie in regard to the Italian portion. Because of this duo-national ownership and questions of prestige and employment, the work on the trains was divided. Schindler Wagons S.A., of Pratteln, Switzerland, acted as main contractor, and built the bodies and undertook full erection. The bogies were built by Brown Boveri, Tecnomasio Italiano, which company also supplied the electrical equipment. Articulation of the cars is on the Italian Stanga system, but built by Schindler under licence. The two first complete trains were built to the account of the S.F. Regionali Ticinesi; the second two are for the Soc. Subalpina.

Articulated Design

The three cars are articulated together, and are supported on four bogies; but in view of the small space available and the desire to give accelerated speeds over steep gradients—some of which are steeper than 1 in 20—every one of the eight axles is motored. The one-hr. rating of the electrical equipment is 720 kW. (980 h.p.), but at a speed of 28 m.p.h., which is well above the rate maintained on the steepest gradients; corresponding tractive effort is 13,000 lb. Starting tractive effort is 16,500 lb., which is enough, for no trailer haulage is contemplated. Empty weight of the train is 60 tons and top speed 37 m.p.h.

No entrance or exit doors are provided in the centre vehicle; passengers have to use the double folding doors near the inner ends of the two end cars and pass through the vestibule connections, though actually these are scarcely noticeable as such inside because of the full-width bellows and method of articulation, as can be seen in the accompanying illustration of the interior. The feature of the Stanga articulation is a large turntable above the male and female articulation pivots, and forming part of the floors, and with subsidiary pivotal points and control links in the roof structure.

Passenger Accommodation

One end car has 16 smoking and 12 non-smoking first-class seats; the other end car has 29 smoking and 16 non-smoking seats; the centre car has 40 smoking seats. A toilet compartment and a baggage rack for the whole train are located in the end car with the first-class accommodation and in one of the two inter-car vestibules; electrical control apparatus is housed in a cabinet opposite the toilet compartment and also under the floors and inter-car cable connections are taken along inside the roof structure. There is a small driving cabin in the right-hand corner at each end of the train.

Interior of second class portion of train, showing Stanga articulation turntable

All wheels are 2 ft. 7 in. dia.; wheelbase of all bogies is 7 ft. 6½ in., and bogie pivot pitches are standard at 29 ft. 7 in. Car body lengths are 39 ft. 6 in. for the end cars and 29 ft. 7 in. for the centre vehicle, giving a total train length over bodies of 108 ft. 7 in. Empty weight per ft. run is thus 0·552 tons; there are 0·79 seats per ft. run, and weight per seat is 1,560 lb. Width over outer panels is 8 ft. 6 in. and height to top of roof 11 ft. 2 in. Floor level is 39½ in. above rail level.

Bogie Construction and Suspension

Construction of the bodies is of the Schindler integral lightweight welded pattern widely used for Swiss and other passenger coaches and electric multiple-unit trains. Bogie suspension is by helical springs and by rubber elements at each axlebox, and by helical springs and hydraulic dampers for the bogies. Each bogie carries two springborne high-speed motors, each of which drives its axle through cardan shafts and bevel gears; the two motors in a bogie are connected permanently in series. A Charmilles air brake applies blocks on the wheel rims, and is supplemented by an electric rheostatic brake with resistances carried on the roof of the centre car. The electro-pneumatic control has 10 notches in series operation and nine in parallel connection, plus four rheostatic braking notches. A small 7-kW. converter group gives a 72-V. supply for auxiliary services from the 1,300-V. line current.

C.P.R. LINE SABOTAGED.—The Kettle Valley line of the Canadian Pacific Railway, in British Columbia, was dynamited on October 21, and an unexploded charge, of which the fuse had apparently failed, was found placed against the house of a railway employee in Nelson.

BRYMBO STEEL WORKS DEVELOPMENT PLAN—Brymbo Steel Works Limited is to undertake a second development scheme at its steelworks in North Wales, involving capital expenditure of over £2,000,000. The new scheme provides for complete replacement of ingot re-heating furnaces by a continuous bogie furnace, installation of a new cogging mill, which will enable the works to take full advantage of the increased steel-making facilities. A result of these changes will be an increase in the throughput of ingots as soon as the mill comes into operation. Steel making facilities to enable this increase to take place are already available.

Two-Car Sets for Lisbon Underground

Trains of two motor coaches on new standard-gauge underground line electrified at 750V. on third-rail system

Standard-gauge train of two motor coaches for Lisbon Metropolitan Railway, showing Scharfenberg coupling and windows of cab with left-hand drive

ON the Metropolitan Railway of Lisbon, which is standard 4-ft. 8½-in. gauge and operated on the 750-V. d.c. third-rail system, it has been decided to run trains of two motor cars, each with two 90-kW. motors on the outer end bogies, connected by Scharfenberg type couplings. There is a driving compartment at each end of each two-car set, with loudspeaker communication to the passenger compartment and roller blind type destination indicator. The vehicles were built by Linke-Hofmann-Busch G.m.b.H. of Salzgitter-Watenstedt, Germany.

The leading dimensions of these vehicles are:—

	ft.	in.
Length of body	52	6
Breadth of body	8	10½
Height from rail level	11	4
Distance between bogie centres ...	36	5
Bogie wheelbase	8	2½
Wheel diameter	2	11⅛
Length of two-car train over buffers ...	108	3¼
Seating capacity	44	
Standing capacity	100	
Running speed	37 m.p.h.	

There are three double doors on each side actuated electro-pneumatically from the motorman's compartment, which itself has single sliding doors and drop windows. Flap upper windows are fitted over the side lights.

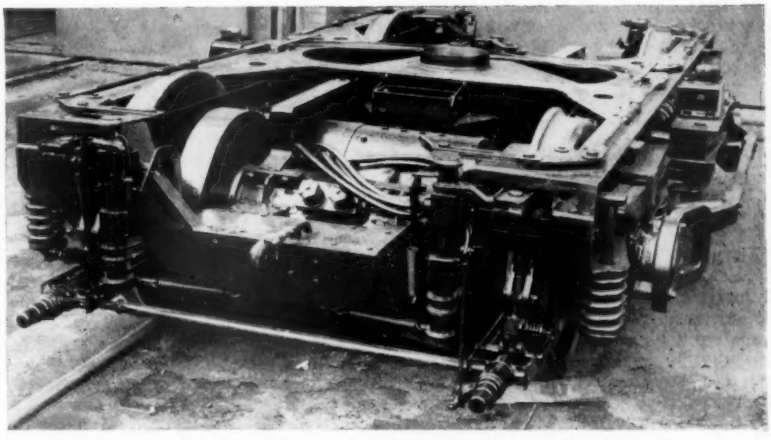
The entrance vestibules divide the body into two central sections, each with cross seats for 16 passengers, and two end ones, each with longitudinal seats for six. Upholstery is in blue artificial leather over rubber backing.

Automatic Acceleration

The bogie frames are of welded construction and each carries four brake cylinders. Acceleration is automatic. Current for the control mechanism, the excitation for the rheostatic braking and lighting is provided at 110V. by a totally-enclosed converter set.

Service braking is rheostatic, using separate excitation, with air and electrical track brakes for emergencies. A hand brake acts on each motor bogie.

There is deadman's handle control and trip cock mechanism for working with automatic stops at the signals.



Bogie, showing frame of welded construction and four brake cylinders

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NEW ENTRANCE FOR MANSION HOUSE STATION, L.T.E.—In connection with a City of London road-widening scheme, the main entrance to Mansion House Station, London Transport District Line, on the corner of Queen Victoria Street, is to be demolished. A new permanent entrance will be opened in about 18 months time on the new building line after road works are completed. Passengers are now using a temporary entrance from Queen Victoria Street.

ELECTRIFICATION WORKS AT GLASGOW.—Work is proceeding on the modernisation of Glasgow Queen Street Low Level station, British Railways, Scottish Region, in preparation for the introduction of electric trains next year. The island platform is closed entirely. Reconstruction of the former No. 13 platform to serve eastbound trains is going ahead, and all eastbound trains for Airdrie, Springburn, Bridgeton Central and other stations on these routes leave from this platform, which has now become No. 11. A new entrance at the east end of the Low Level station gives access from and to North Hanover Street. It is now in use for eastbound trains only, and the central access from the carriageway of the High Level station for these trains is now closed. A temporary booking office is being erected at the new North Hanover Street entrance. This will be replaced eventually by a permanent building. The existing entrances from Dundas Court at the west end of the station are to be widened and improved. Trains for Helensburgh, Balloch, Milngavie, Hyndland, and so on, continue to leave from No. 10 Platform and the usual entrances and exits for this platform are available. Major reconstruction is taking place during off-peak hours and at week-ends.

FRENCH ELECTRIC LOCOMOTIVES FOR RUSSIA.—Locomotives for the 25 kV., 50-cycle electrified system of the U.S.S.R. Railways being built by Société Générale de Constructions Electriques & Mécaniques Alsthom and Le Matériel de Traction Electrique comprise 10 passenger, 10 goods locomotives with, and 30 goods locomotives without, regenerative braking, all of the CC wheel arrangement. They are to work on the Trans-Siberian line between Mariinsk and Irkutsk. All future electrification in U.S.S.R., it is announced, is to be on the 25 kV., 50-cycles system.

Electric Traction Section

Overhead Electrification of Sidings in the Southern Region

Methods of contact wire support and overhead clearances under various conditions

A LARGE amount of freight traffic is now being hauled on British Railways, Southern Region, by the 2,500-h.p. Bo-Bo electric locomotives described in our issue of February 13, 1959. These locomotives have a dual pick-up arrangement, pantograph and third-rail shoe, to enable them to work under their own power in sidings equipped with overhead contact wires.

These overhead conductors are of a grooved hard-drawn cadmium copper wire with double insulation and supported without catenary. Supporting structures are, in the main, tubular steel poles built up from three sections swaged together, hot dipped galvanised externally and internally with a " Beret " type cap on top. Tubular steel gantries, of all-welded construction are used where steel poles cannot, either because there is insufficient clearance for stays, if stays are required, or the span wire would have to cross more than four tracks. The gantries are supported on tubular "A" type frames and bolted to same. These supports are, like the gantries, of all-welded construction and hot dipped galvanised. Concrete foundations are used for all structures and also for stay wire blocks which are constructed *in situ*. The factor of safety of an installation is 2·5 based on the ultimate strength and 1·5 under " one broken wire " conditions, both being based on the worst conditions. That is, a wind of 50 m.p.h. at a temperature of 22°F. and $\frac{3}{4}$ in. radial thickness of ice on all wires, including the contact wire.

Contact Wire Support

The contact wire insulators and associated fittings are supported by one of three methods where the main supporting structure is a tubular steel pole: single cantilever arm; double cantilever arm; and span wire (up to four tracks) with a single catenary. All steel poles are electrically bonded to the nearest non-track circuited electrified line.

In most cases the insulators and associated fittings are supported direct from the gantry, but there are cases where it was found prudent to attach a cantilever arm to the outside of a gantry support to cater for contact wires adjacent to the gantry. One supporting structure only of each gantry is electrically bonded to the nearest non-track circuited electrified line to prevent currents circulating in the structure.

Where practicable, structures are mounted not less than 6 ft. 6 in. from the gauge (inside) edge of the running rails. The following clearances are provided after making allowances for curvature and superelevation of the track, including any movement of the overhead line equipment under the most unfavourable conditions.

Through tunnels, underbridges and other structures between the maximum load gauge and the underside of any overline wire or conductor, a clearance of 6 in. is desirable with 4 in. as an absolute minimum. This also applies between any part of the structure and the nearest point of any overhead wire or conductor. These clearances are maintained with the wire at a temperature within the temperature range of 22°F. to 122°F.

Between rail level and the overhead contact wire at mid span, the clearances are 16 ft. for normal conditions, at 60°F.; 18 ft. minimum at public level and occupation crossings, at 122°F.; 20 ft. minimum at places where there is a likelihood of men in the course of their duties having to stand on top of engines or vehicles, at 122°F.; and 20 ft. 6 in. minimum at places where cranes may operate, at 122°F.

Because the locomotive pantographs will not collect current with the contact wire at the latter height, this arrangement is only used as a method of providing continuity in the contact line, in lieu of having a gap in the line with cabled connections.

Contact Wire

The contact wire has a cross section of 0·25 sq. in. This size was adopted to take care of voltage drop. The height above rail level is usually determined by site conditions as referred to above, but there are exceptions where the height is less than 16 ft. above rail level to pass under bridges spanning the electrified lines, but the absolute minimum clearance of 4 in. stipulated by the Ministry of Transport is never infringed.

Where the contact wire passes beneath an overbridge the overlooking parapet walls are increased where required to a height of 5 ft. above the footway, to prevent persons from touching the conductor rail with any object. The walls are made solid if they are of the open type. In general where the overhead contact wire passes beneath bridges, no bridge protection has been deemed necessary, except in one instance where the clearance is of the order of $5\frac{1}{2}$ in. and in this case flame-proofed timber is attached to the underside of the bridge superstructure.

For general protection warning notices are mounted on poles and gantries when these are sited in places where the public may have access, anti-climbing guards are also employed where deemed necessary.

Supply System Changeover

To enable a locomotive to change over from the conductor rail method of supply to the overhead contact wire system, or vice-versa, the two systems are run in parallel for an effective electrical distance of approximately 200 ft. the actual length depending on site conditions. The driver of the locomotive is directed as to when operation of the pantograph control gear is necessary by illuminated instruction notices displaying the letter " R " (raise) on one side and " L" (lower) on the other.

The overhead contact wire will normally receive its supply from an overlapping length of conductor rail which, in turn, will be supplied via a medium-speed circuit breaker. In certain cases where the contact wire extends over the running lines the supply will be direct from the associated conductor rail fed through a medium speed circuit breaker.

Current is therefore fed from a running line conductor rail to a siding conductor rail via a medium-speed circuit breaker, the associated cables being connected to the conductor rails by hook switches for isolation purposes. An emergency feed is also provided and comprises a cable which may feed direct from running line conductor rail to siding conductor rail when the associated hook switches are closed. A feeder cable is connected between the siding conductor rail and the overhead contact wire system via a hook switch mounted on the former.

Where the overhead contact wire extends over the running lines the medium-speed circuit breaker feeds direct from the latter to the former, in this case a hook switch is provided on the conductor rail side of the feed, and a pole-mounted one in the contact wire side, for isolation purposes. An emergency feed is provided to bypass the circuit breaker.

Section Insulation

Where the extent and type of layout warrants, overhead section insulators are provided and these may be complete with pole-mounted isolating switches for making the system " electrically solid " if desired. The larger sites incorporate up to four medium-speed circuit breakers and emergency feeds, also several section insulators and associated pole-mounted isolating switches.

Should it be desirable to isolate a section of an overhead contact wire system this may be achieved by opening the medium-speed circuit breaker and/or associated hook switches. Isolation could also be achieved by a pole-mounted isolating switch if provided.

The installation of overhead electrification has been completed at the following yards: Hither Green Goods, Sittingbourne, Bricklayers Arms Goods, Plumstead, Angestines Wharf, Hoo Junction, Faversham, Shepherds Well, and Dover Town. Installation is in progress at Snowdown Colliery, Maidstone West, and Deal. The work is being carried out by contractors under the general direction of Mr. W. J. A. Sykes, Chief Mechanical & Electrical Engineer, British Railways, Southern Region.

RAILWAY NEWS SECTION

PERSONAL

Mr. A. H. Hart, Special Assistant in the Traffic Department, Canadian National Railways, has been appointed System Vice-President of Traffic, with effect from February 1, 1960.

Mr. J. S. Mathur, M.A., Chief Operating Superintendent, South Eastern Railway of India, who as recorded in our September 4 issue, has retired, was born in 1904. After taking his M. A. degree at Lahore University in 1926, he joined the East Indian Railway as a probationary in the Transportation & Commercial Department in 1927. In April, 1938, he was transferred to the Eastern Bengal Railway (later Bengal Assam Railway). During the 1939-45 war he officiated as Divisional Superintendent at Lumding in 1943, and at Dacca, in 1944. Towards the end of that year he went to Chittagong as Deputy Transportation Manager. Between May, 1946, and March, 1947, he served as Joint Director, Movements, Ministry of Food, Government of India, and later was transferred to the Ministry of Transport as Regional Controller of Railway Priorities, Calcutta. Mr. Mathur was appointed Divisional Transportation Superintendent on the Great Indian Peninsula Railway in September, 1948, and Traffic Manager of the Oudh Tirhut Railway in August, 1951. In 1952, he was appointed Chief Operating Superintendent North Eastern Railway. In August, 1955, he was transferred to the then newly-formed South Eastern Railway of India, as Chief Operating Superintendent. He was commissioned in the Defence of India Unit (Railways) in June, 1942, and held the rank of Lt.-Colonel when this unit was disbanded in 1945.

Mr. J. Bonham-Carter, Planning Officer (Electrification), in the office of the General Manager, Eastern Region, British Railways, has been appointed Assistant General Manager, Eastern Region, in succession to Mr. A. J. White.

Mr. P. B. Johnson, Assistant District Passenger Superintendent, Newcastle, North Eastern Region, British Railways, has been appointed Modernisation Assistant, Traffic Manager's Office, West Riding, Leeds.

Mr. J. S. Tritton, President of the International Federation of Consulting Engineers (F.I.D.I.C.), has been awarded the Silver Medal of the Royal Society of Arts, 1958-59, for his paper " The Consulting Engineer and his contribution to the national economy."

Mr. James R. McBeath has been appointed District Traffic Superintendent, Ayr, Scottish Region, British Railways. He was appointed Assistant District Traffic Superintendent, Ayr, in 1956, and recently has been occupying temporarily the position of District Traffic Superintendent.

Mr. C. S. Slater has been appointed Assistant Engineer (Civil), East African Railways & Harbours Administration. For the past two years he has been a graduate engineer with British Railways.

Mr. K. W. C. Grand, Member of the British Transport Commission, and Mr. S. B. Warder, Chief Electrical Engineer, British Railways Central Staff, will be attending the meeting of the Permanent Commission of the International Railway Congress Association which is to be held in New Delhi next month. Reference to this meeting is made elsewhere in this issue.

Mr. G. D. Khandelwal, Chief Operating Superintendent, Eastern Railway, India, who, as recorded in our September 4 issue, has been appointed Chief Operating Superintendent, South Eastern Railway, was educated at Allahabad University, where he gained first-class honours. He joined the East Indian Railway in 1935, and served as a Claims Officer and was later appointed Divisional Operating Superintendent. He became Acting Deputy Chief Operating Superintendent in 1951. In 1954, he served as Regional Transportation Superintendent, Bilaspur and, the following year, joined the Railway Board as Joint Director, Traffic (Transportation). In 1956 Mr. Khandelwal returned to the Eastern Railway as Divisional Superintendent, Asansol. For a short time, in 1957, he acted as Chief Operating Superintendent, before being appointed Divisional Superintendent at Dinapore. Mr. Khandelwal became Chief Operating Superintendent, Eastern Railway, last year.

Mr. M. A. Hamid, Divisional Superintendent, Multan, North Western Railway, Pakistan, has been appointed Chief Commercial Manager of that railway.

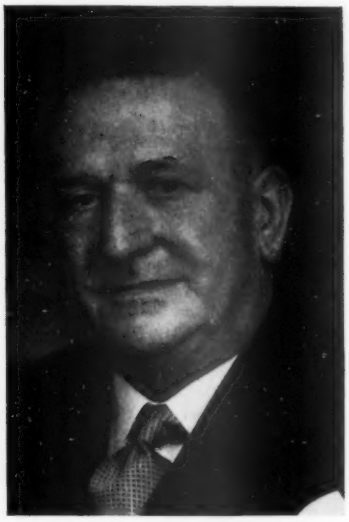
Mr. J. S. Mathur

Chief Operating Superintendent, South Eastern Railway, India, 1955-59

Mr. G. D. Khandelwal

Appointed Chief Operating Superintendent, South Eastern Railway, India

The late Mr. J. N. Bull
Locomotive Works Manager, St. Rollox, Glasgow, 1948-59



The late Mr. J. Bridger
District Traffic Superintendent, Redhill, Southern Region, 1945-55

Mr. W. Griffiths
Appointed District Commercial Officer, Swansea, Western Region

We regret to record the death on October 17 at the age of 54, of Mr. J. N. Bull, B.A. (Cantab.), A.M.I.Mech.E., Locomotive Works Manager, St. Rollox, Glasgow. Mr. Bull joined the London & North Eastern Railway as a pupil at Darlington Locomotive Works in 1926. After service at various motive power depots in the North Eastern Area he became Stationmaster & Locomotive Shed Foreman at Alnmouth in 1938, and Locomotive Shed Foreman at Darlington in 1940. From 1941 to 1945 Mr. Bull held various appointments at York and Doncaster Works and in 1945 he moved to Cowlairs Works as Locomotive, Carriage & Wagon Works Manager. He was appointed Locomotive Works Manager, St. Rollox, in 1948 and since June, 1958, he had occupied temporarily the position of Locomotive Assistant to the Chief Mechanical & Electrical Engineer, Scottish Region.

Mr. J. Higginbotham, Mr. W. G. A. Jenkins and Mr. F. A. Ross have been appointed to the board of Edgar Allen & Co. Ltd.

Mr. F. C. Braby has been elected Chairman of the Council of the British Non-Ferrous Metals Research Association. He will succeed Dr. Maurice Cook, who retires from office on December 31.

Miss M. E. Brown, who has been Official Stenographer at the technical meetings of the Institution of Railway Signal Engineers for ten years, has retired. To mark the occasion she was presented, on November 10, at a meeting of the Institution, with a canteen of cutlery. The presentation was made by Mr. D. G. Shipp, President, on behalf of Members of the Council. Miss Brown has been succeeded by Mrs. Y. Wells.

Mr. E. Masters, Director, Fighting Vehicles Research & Development Establishment, has been appointed Managing Director of Petters Limited and of Hawker Siddeley (Humble) Limited, with effect from January 1. He will also become a member of the board of Hawker Siddeley Industries Limited. He succeeds Mr. D. K. Fraser, who has resigned his various directorships with the Hawker Siddeley Group on his recent appointment as Managing Director of G. A. Harvey & Co. (London) Ltd.

Mr. J. Bridger, M.B.E., D.C.M., District Traffic Superintendent, London Central District, Redhill, Southern Region, British Railways, 1945–55, whose death on November 3, at the age of 69, was briefly recorded last week, began his career at New Cross Gate, London Brighton & South Coast Railway, as a telegraph learner in 1904. He transferred to the clerical staff in 1908, and from then until the 1914–18 war he was in the Train Running Section at Head Office. He subsequently served overseas with the Royal Engineers for three years, during which time he was awarded the Distinguished Conduct Medal for services in the field. Mr. Bridger was appointed Assistant Stationmaster at Victoria, in 1927, and Deputy Chief of the Freight Section at Waterloo in 1928. In the following year he became Yardmaster at Norwood Yard, and, six years later, went to Guildford as Stationmaster. In 1938 Mr. Bridger was appointed Stationmaster at Victoria, where he remained until 1943. He became District Traffic Superintendent at Redhill in 1945, a position held until his retirement in 1955. Mr. Bridger was awarded the M.B.E. for services in the 1939-45 war, and received decorations from the former French President, the King of Rumania, and the King of Bulgaria.

The funeral took place on November 7, in St. John's with St. Peter's Church, Preston Park, Brighton. The Rev. R. M. Raper, Vicar of Preston and Rural Dean officiated. In addition to family mourners the following were among those who attended :—

Mr. A. Earle Edwards (representing Mr. S. A. Fitch), Messrs. W. C. Collins, H. Barber, N. L. Collins, T. R. V. Bolland, A. Blaker, J. Rodgers, I. Marshall, J. C. Urie, M. H. W. Smart, A. E. Hoare, R. C. Edwards, S. W. Smart, J. Terry, P. Nunn, C. Bishop, W. T. Powell, J. H. Brown, J. M. Cripps, G. Chard, W. E. Liddiard, J. Bullock, R. H. Clark, E. Sturt, H. M. Madgwick, G. Baldwin, T. Mann, S. A. Harmes, J. Tester, R. Pullinger, G. Cheal, A. Mansfield, Tanner, C. Grist, H. Charman, F. Hyder, L. Berry, E. Longhurst, E. Hobday, J. Shannon, F. Derham, J. C. Annand, J. A. Hillman, J. T. Reynolds, A. Rochford, A. Taylor, F. G. Warren, A. Wright, G. Duckworth, E. F. Carter.

Mr. Herbert Slack has been appointed to the board of Kelvin & Hughes (Industrial) Limited, as Sales Director.

Mr. William Griffiths, District Commercial Manager, Shrewsbury, Western Region, British Railways, who, as recorded in our September 11 issue, has been appointed District Commercial Officer, Swansea, joined the Great Western Railway, at Shrewsbury, in 1920, and in 1929 was selected for special training in various departments. On completion of this training, he served at Paddington Headquarters for seven years and was, for a time, Personal Clerk to the Chief Goods Manager. He later became Goods Agent at Penzance, Slough and Swansea, and Chief Clerk at Paddington Goods Depot. In 1942, he was appointed Chief Clerk to the District Goods Manager, Cardiff, and was transferred to Swansea two years later. Mr. Griffiths was Assistant District Commercial Manager at Swansea for eight years, and, in 1954, was appointed District Commercial Manager at Shrewsbury.

We regret to record the death, at the age of 86, of Mr. J. Mallagh, formerly Chief Engineer, Dublin Port & Docks Board.

Admiral Sir Michael M. Denny has been appointed a Director of English Steel Corporation Limited, of Sheffield.

Mr. K. R. Simmonds has been appointed General Manager of International Rectifier Co. (Great Britain), Ltd.

Mr. G. W. Irwin, Secretary, Eastern Area, Road Haulage Association, will retire at the end of the year. He will be succeeded by Mr. K. Williams of the East Midland Area staff.

Mr. T. S. Dally has been reappointed President, and Mr. C. A. F. Hastilow and Mr. B. J. Nicholson, Vice-Presidents, of the Society of British Paint Manufacturers for the coming year. Dr. J. E. Arnold, Mr. A. Wallace Barr, Mr. F. W. Burmann and Mr. G. W. R. Ward have been elected to fill the vacancies on the council.

Mr. M. P. V. Hannam, has resigned from the office of Hon. Corresponding Member of the Institute of Transport for Malaya, in anticipation of his retirement from the service of the Malayan Railway. He is being succeeded in this capacity by Mr. B. T. L. Sanderson, Traffic Manager, Malayan Railway.

Mr. B. T. Ruting
Comptroller of Stores, New South Wales Government Railways, 1949-59

Mr. T. E. H. Fussell
Appointed Comptroller of Stores, New South Wales Government Railways

Mr. J. M. LeMay
Appointed General Passenger Agent, Montreal, C.P.R.

Mr. B. T. Ruting, Comptroller of Stores, New South Wales Government Railways, who, as recorded in our September 18 issue, has retired, joined the Department of Railways, in 1909, as an apprentice clerk, and was transferred to the Stores Branch in 1915. He was appointed Stores Supervisor in 1946, and three years later was promoted to be Comptroller of Stores.

Mr. Porter M. Jarvis, President of Swift & Company, has been elected a Director of the Illinois Central Railroad.

We regret to record the death in Bombay at the age of 73, of Dr. John Matthai, Indian Minister of Railways & Transport, 1947-48.

Mr. J. R. Robinson, Chief Engineer, Hepworth & Grandage Limited, has been appointed to the board of the company.

Mr. A. J. S. Brown has been appointed Chairman of Carlyle Air-Conditioning & Refrigeration Limited, the new company formed this year by Carrier Corporation of New York in association with Stone-Platt Industries Limited. Other members of the board are: Mr. Ralph S. Reynolds, Managing Director; Mr. H. W. Harper, Director; Mr. O. W. Bynum, Director (U.S.A.); Mr. J. M. Rachal, Director (U.S.A.); Mr. A. H. Chilton, Alternate Director; Mr. S. K. Prestige, Alternate Director.

Mr. W. F. Minnis, J.P., former General Manager, Belfast & County Down Railway, whose death, on November 8, was briefly recorded last week, served that railway for 60 years. He joined the company in 1884, as a junior clerk, at the age of 12, and five years later was placed in charge of the Belfast Parcels Office. He subsequently acted as Agent at various stations on the system, and, in 1904, was appointed Traffic Superintendent. In 1926, he became General Manager, a position he held until his retirement in 1944. Mr. Minnis was Chairman of the General Managers' Conference for Irish Railways in 1929 and 1935, and was for many years a member of the Irish Railways Wages Board. He was also a member of the Northern Ireland Roads Advisory Committee and of the Standing Joint Committee set up under the Road & Railway Transport Act of 1935. He was appointed a J.P. for Belfast in 1926.

Mr. T. E. H. Fussell, Accountant, Stores Branch, New South Wales Government Railways, who, as recorded in our September 18 issue, has been appointed Comptroller of Stores, New South Wales Government Railways, joined the system as a junior clerk in the Stores Branch in 1921. After experience in Sydney and country stores of the Department, he was appointed Assistant Accountant in 1949. He was promoted to be Accountant, Stores Branch, in 1956, the position which he now relinquishes.

Mr. H. O. Barrett has been appointed General Manager & Secretary, Machine Tool Trades Association.

Mr. John D. Bolckow, Assistant General Manager, Redpath Brown & Co. Ltd., has been appointed a Director of the company.

Mr. T. W. Heather, Assistant Managing Director, General Electric Co. Ltd., has retired. He was a member of the board for over 21 years.

Mr. James MacKie, Rolling Stock Superintendent, Aberdeen Corporation Transport, has retired and has joined the staff of the Aberdeen Depot, Small & Parkes Limited.

Mr. Paul N. Matton, Managing Director, Trico-Folberth Limited, left England this month to make a business trip taking in Singapore, Sydney, Melbourne, Honolulu, San Francisco, Chicago, Buffalo and New York.

Dr. Robert Hunter, Deputy Managing Director, Clyde Alloy Steel Co. Ltd., has been elected Chairman of the Council of the British Steel Castings Research Association. Mr. W. S. Scott, a Director of Darlington Forge Limited has succeeded Dr. Hunter as Vice-Chairman. The retiring Chairman is Mr. C. H. Kain, Managing Director of Lake & Elliot Limited and of the National Steel Foundry (1914) Limited.

Mr. Allen L. Stock, because of his recent appointment as Chairman of Morgan Crucible Co. Ltd., finds that he is unable to carry out the full duties of Chairman of Lodge Plugs Limited. He has therefore relinquished his position as Chairman and resigned from the board of Lodge Plugs Limited.

Mr. J. M. Le May, Assistant to the General Passenger Traffic Manager, Montreal, Canadian Pacific Railway, who, as recorded in our August 21 issue, has been appointed General Passenger Agent, Montreal, joined the C.P.R. at Quebec in 1920. Mr. Le May served in Paris, Philadelphia and Montreal. He was appointed General Agent, Quebec, in 1944, and since 1949 has been Assistant to the General Passenger Traffic Manager, Montreal.

Sir Walter Worboys has resigned from the Board of Imperial Chemical Industries Limited.

Mr. R. J. Dixon has been appointed Director & General Manager, Machine Tool Manufacturing Co., Ltd.

Mr. J. C. G. Wegerif, Assistant Managing Director, Bentley Engineering Group, has been appointed an Additional Director of the Dowty Group.

Mr. Thomas G. Ellison and Mr. Arthur E. Skan have been appointed Joint Managing Directors of George Ellison Limited. Mr. Ellison is a son of the founder of the company and is its Chairman.

Mr. E. C. Holroyde, Vice-Chairman & Director, Crompton Parkinson Limited, has resigned at his own request to allow for the appointment of younger men. Mr. Michael Parkinson has been elected a Vice-Chairman and Mr. J. B. Scott a Director.

Mr. James Farrow, Sales Director, W. Gilmour Smith & Co. Ltd., has been appointed Joint Managing Director of that company. Mr. Peter B. Humpherson formerly of Fibreglass Limited, Glasgow, has been appointed Sales Manager of W. Gilmour Smith (Engineering) Limited, as from December 1.

Mr. F. P. Ashley has been appointed Managing Director of Carrier Engineering Co. Ltd. Mr. A. P. Fowler has relinquished his position as Joint Managing Director, having reached retiring age, and has been appointed Vice-Chairman. Mr. H. L. Groom has resigned as Joint Managing Director and a Director and has accepted the office of Chairman & Managing Director of Carrier Construction Co. Ltd., a subsidiary.

XUM

NEW EQUIPMENT AND PROCESSES

Road Haulage Container

A NEW "frameless" road haulage container made throughout from Bakelite polyester resin is supplied with top or bottom lift, is claimed to be over 25 per cent lighter in weight than conventional units and to cost 25 per cent less than containers mdae from more conventional materials.

The container is constructed from two basic types of panel—one for the sides and the other (translucent) for the roof. Each panel is flanged on all four sides and assembly is effected by securing the flanges of adjacent panels with nuts and bolts. Moulded-in diagonal reinforcing ribs, also based on Bakelite polyester resin, provide rigidity, and the entire structure is secured to the floor and bearers by light alloy angle.

Containers can be panelled to facilitate insulation. "T"-section cover strips are fitted between each panel joint and flooring can be of a slate-filled Bakelite polyester resin. Minor repairs are simply and inexpensively carried out with resin and glass fibre or a whole panel can be replaced in approximately 30 min.

The ease of assembly of these new containers makes them particularly suitable for export markets.

Further details can be obtained from the manufacturer, Salmesbury Engineering Limited, of Salmesbury, near Blackburn, Lancashire.

Turnstile Renting Scheme

A RENTAL scheme covering a wide range of coin-freed turnstiles has been introduced to help organisations unable to consider outright purchase.

Under the new "Rent - a - Turnstile" scheme, selected equipment is hired for a minimum period of five years and subsequent renewal of contract at a reduced rate. The lessee has an option to purchase.

No charge is made for delivery and supervision of erection, or for regular inspection and maintenance by qualified service engineers. Emergency maintenance is free.

Full details of the scheme, and of the range of turnstiles covered, can be obtained from Sir W. H. Bailey & Co. Ltd., Albion Works, Patricroft, Manchester.

Pneumatic Control Apparatus

THE following new apparatus for pneumatic control systems is available:—

Pneuvalves consisting of pneumatically-operated remotely-controlled Globe or Marine valves ranging from ½ in. to 6 in. in size. Alternatively, the pneumatic operator can be supplied separately for modification of existing hand-operated valves. The pneuvalves are available in two categories: (*a*) *Open/Shut*, which operates on an "over-centre" principle; and (*b*) *Variable Opening*, which enables any degree of valve opening to be achieved remotely at the touch of a finger. These valves are designed for low pressure (100 lb. per sq. in.) and are suitable for gas, air, sea water, lubricating oil, fresh and bilge water, fuel oil, and distillates.

Industrial Positioners are a range of spring-balanced diaphragm positioners designed for use where sensitive positionirg is required. Pressure ranges and work ratings are as follow: type 12D, work rating: 72 in./lb., pressure range: 0–25, 0–50, 0–80; type 36D, work rating: 388 in./lb., pressure range: 0–50, 0–80; type 50D, work rating: 600 in./lb., pressure range: 0–50, 0–80.

Rotorseals enable an air supply from a stationary source to be fed into a rotating shaft for distribution to one or more services. The range consists of single-, twin- or four-pipe versions.

Forward/reverse selector and standstill detectors satisfy a demand for a foolproof system of gearbox operation on such vehicles as locomotives or railcars. Used in conjunction with the Westinghouse Standstill Detector, this selector ensures that a change in drive direction cannot take place until the vehicle is stationary.

Solenoid Operators for type "D" Pilotair valves increase the manufacturer's existing range of solenoid operators for the "D" type On/Off spool valves to cover the following voltages for d.c. supplies: 24V., 32V., 50V. 110V., 200V.

Further details can be obtained from the Westinghouse Brake & Signal Co. Ltd., 82, York Way, Kings Cross, London, N.1.

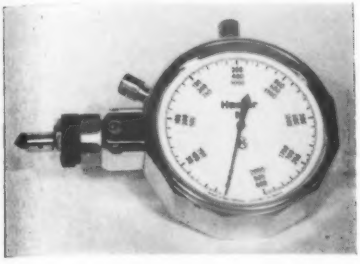
Tea-making Machine

THE "Teamatic" is an entirely new British-made automatic tea-making machine which brews fresh tea for each individual cup.

Attractively finished in blue and yellow stove enamel and with chromium fittings, the machine measures 5 ft. high x 2 ft. 6 in. wide x 2 ft. deep. It will deliver perfectly-brewed tea after a 20 min. warming-up period from cold. On the insertion of a coin, the machine delivers a cup of individually-brewed tea in 10 sec. Tea is of consistent quality, quantity, flavour, and temperature. Refrigerated homogenised liquid milk is used and the pressure of a button determines whether or not sugar is included. Ordinary leaf tea is used.

For each cup a pre-set amount of tea is immediately shredded and ground, after which bleeding releases its full flavour and aroma. The shredded tea is dropped in a mixing container where boiling water infuses the tea. The tea then flows into a brewing chamber where sugar is added if required. Then, after a short pause, it passes through a filter into a previously-positioned cup, where the addition of liquid milk from a built-in refrigerated tank completes the process. Used tea is disposed of automatically and empty cups may be placed in an ancillary receptacle.

Capacities of the tea and sugar containers are sufficient to produce 600 cups of tea in 7 oz. "China-Cote" cups. The quantity of tea produced is variable up to a ½ pt. and the cup mechanism can be excluded all together at a reduction in price of £25.



Approximately 280-320 cups of tea to the pound—dependent on strength. The refrigerator contains a 2 gal. milk churn.

Ingredient and cup costs, machine depreciation, and maintenance are well covered at a price of 2d. per cup.

Price is £483 ex-works. Hire purchase or rental facilities are available.

British patents are pending and the machine which is manufactured and guaranteed by Rank Precision Industries Limited, of Leeds, is marketed by Machine Economy Limited, Teamatic Sales Division, Redcliffe House, Redcliffe Gardens, Kensington, London, S.W.10 (Head Office, 76, Victoria Street, Bristol, 1).

The machine is comprehensively insured for an annual premium of £2 12s.

Hand Tachometer

FOUR electrical hand tachometers known as M/01, M/02, M/03 and M/04, have been added to the Hasler range. They have a speed range of 0-400—800—2,000 ; 0-800—1,600—4,000; 0-3,000—6,000—15,000, and 0-8,000—16,000—40,000 r.p.m. respectively with an accuracy of $\pm \frac{1}{2}$ per cent.

A pointer-locking device operates where direct reading is not possible, and dial figures are coloured in red, green and black to facilitate easy identification of speed range.

Finish is in polished aluminium and as accessories each instrument is provided with a pocket case, one conical and one concave rubber friction point, and measuring wheel for circumferential speeds (metres/min., ft./min.).

Further details can be obtained from the Hasler Telegraph Works, Limited, 26 Victoria Street, Westminster, London, S.W.1.

Surfacer

DEVELOPED for use in locating and correcting low spots in track surface, the Nordberg Midget Surfacer may be used to locate and correct irregular surface; to locate and correct minor surface irregularities after jacking and before tamping in a track-raising operation; to locate and correct settlement irregularities following re-ballasting of high lifts and to analyse the quality of track surface. It is made up of one 4-wheel carriage and three 2-wheel bogies, all connected by aluminium coupling tubes. The carriage carries a cross-level board, pointer assembly, pushing handle, two rod brakes to hold the machine on grades, two shelves to hold the hand jacks and a tray for tools or other equipment.

For " sighting," the Surfacer employs a steel wire approximately 100 ft. long. The rear wire support is 20 ft. and the front wire support is 30 ft. from the pointer assembly. Thus the distance between the wire support rollers on the front and rear bogies provides for 50-ft. of wire over each rail. With 80 lb. of pull through the winch and spring attachment the wire is drawn tight, exactly 8 in. above the top of the rail head at the wire support rollers.

There are two pointers, one for each rail, and a graduated scale is mounted on the carriage. One end of each pointer is in constant contact with the wire above its respective rail; the other end moves over the graduated scale mounted at the centre of the carriage. The pointers are mounted so that the distance from pivot to pointer tip is three times as great as the distance from pivot to wire. Track irregularities are magnified by three on the pointer scale for greater accuracy.

The wire is the " sighting " element which eliminates visual errors and human judgment. The rails are examined independently and corrections are made to either rail in the desired quality and accuracy to improve the average cross level conditions.

The unit is easily pushed along the track. On perfect track surface the pointers will remain steady on the " zero " line. As low spots are encountered in either rail the respective pointer will move below the " zero " line.

Each wire and its pointer analyses the respective rail independent of the other rail. When a low spot is found, the Surfacer is moved back and forth along the track to determine the lowest point in the spot. A hand jack is then inserted and the track lifted until the pointer reading is corrected. A sleeper adjacent to the hand jack is manually tamped to hold the correction. Suitable tamping means are then used to tamp all sleepers at the corrected spot.

Predetermined quality surface standards may be established. Instructions can be issued to correct all places the pointers show to be one scale mark (approximately $\frac{1}{8}$ in.) low, or two scale marks (approximately $\frac{1}{4}$ in.) low. In addition, one standard can be set for high-speed track and a different one for other track. If joints are to be " cocked " or " over-raised," standards for the amount of " overraise " can also be set, for example, $\frac{1}{8}$ in. high, $\frac{1}{4}$ in. high.

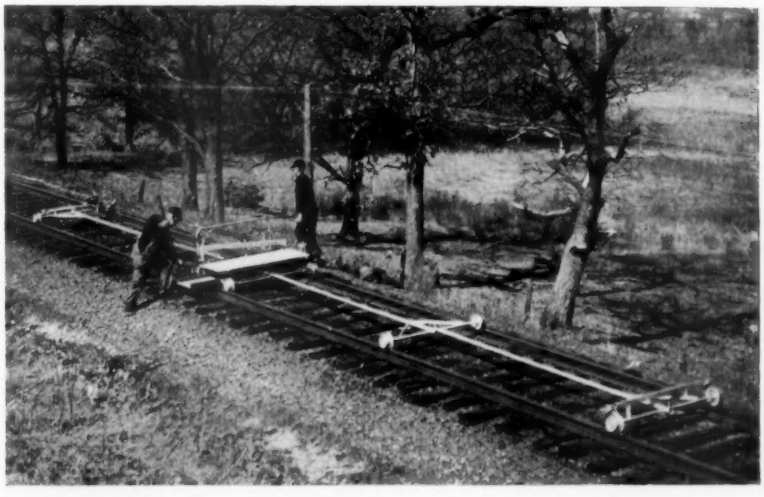
The unit is insulated. Aluminium is used wherever possible. Total weight is 508 lb. and the heaviest piece, the carriage, weighs only 200 lb. Two men can set the unit on or off the track in about a minute and a half.

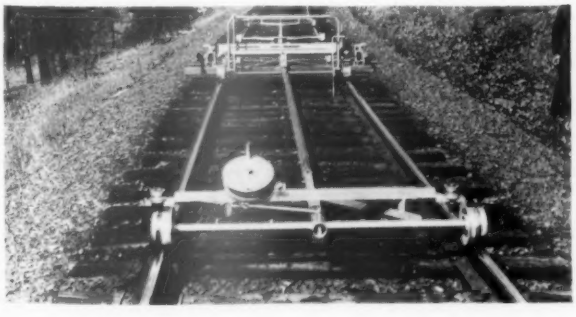
Further details can be obtained from the Nordberg Manufacturing Company, Milwaukee, Wis., U.S.A.

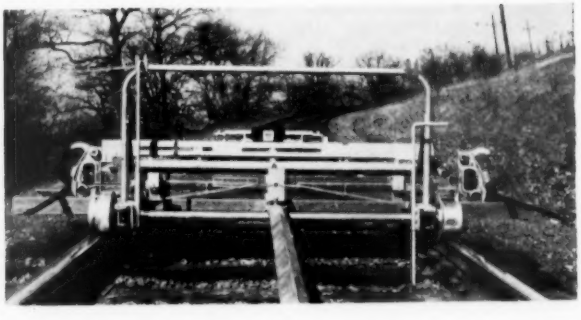
Protection Against Rust

GALVAFROID is a zinc paint applied by brush which is claimed to confer protection against rust comparable with that of hot-dip galvanising. It can be applied as simply as a paint to any iron or steel surface, dries quickly, and provides cathodic protection. It can be left as self-finish or used as a primer for other paints. It can be covered by anti-fouling treatments, but not by paints containing bitumen.

Further details of this product can be obtained from the manufacturer, Secomastic Limited, Bracknell, Berkshire.







XUM

New Marshalling Yard and Re-signalling at Perth

Automatic route-setting and retardation of wagons

The development of rail facilities at Perth, British Railways, Scottish Region, centre round the provision of a new mechanised marshalling yard and a power signalling installation. At present the reception and despatch of freight traffic entering, leaving or passing through the Perth area has to be spread over two or three yards where shunting is relatively slow and expensive in both engine and manpower. Many of the wagons have to be handled more than once, and in some cases transferred from one yard to another. By reason of their location and design none of these freight marshalling facilities was suitable for development; consequently it was necessary to find a new site for a single mechanised marshalling yard capable of dealing with the whole of the traffic requiring to be handled. The site for this yard is located alongside the main line between Perth and Stanley Junction.

Yard Layout

The site is semi-circular covering 38 acres and is well suited to the formation of a marshalling yard. The yard, which covers a length of more than a mile from north to south and some 200 yd. from east to west at the widest, contains 30 sorting sidings and six arrival lines for receiving trains before sorting.

An incoming train will enter one of a group of six reception lines, where the locomotive will be detached. From there it will be drawn by a diesel shunting engine to a headshunt, where the wagons will be examined, uncoupled, and listed according to destination. The list will be passed by pneumatic tube to an operator sitting at a console in an elevated control tower, who will press a series of keys to transfer to punched tape the siding numbers into which the wagons are required to pass.

Automatic Point Operation

The train will then be propelled over a hump, the individual wagons separating as they pass on to the falling gradient. Points will operate automatically to direct the wagons into the appropriate sorting siding, while their rate of progress will be regulated by retarders. While both points and retarders operate automatically, the operator in the control tower can take overriding action if necessary, all controls being concentrated on the console at which he sits.

The 30 double-ended sorting sidings in the main yard will enable the majority of the wagons to be directed on to the appropriate outgoing trains without any further shunting. Two small groups of secondary sorting sidings will be provided to enable local trains to be made up into proper order for serving a series of wayside stations. Trains will be able to depart direct from the new yard, either to the north or the south.

Progress of Work

Having acquired the land, the engineering work to prepare the site for the tracks was put in hand in February, 1956. The laying of the sidings and other lines, which amount in all to 15 miles of track, was done entirely by the railway engineering staff and was commenced in November, 1957. The track of the standard sidings was laid in 60-ft. lengths as recovered from renewals on main lines, and the switches and crossings were laid by mobile crane. The track laying is now almost complete. The next phase of the civil engineering work will be the erection of the control tower, the yardmaster's office and other staff buildings.

Work is in progress on the installation of electro-pneumatic wagon speed retarders. These will be automatically controlled from the control tower. The equipment, which is being supplied and installed by the Westinghouse Brake & Signal Co. Ltd., includes air compressors and electronic equipment. A stand-by diesel generator is to be provided so that alternative power is available in the event of an electricity failure.

Perth Re-signalling Scheme

Within the area bounded by Stanley Junction, Barnhill and Hilton Junction Signalboxes (all inclusive) there are at present 13 mechanical signalboxes, all of which are to be closed. Control of all movements over running lines within this area will be concentrated upon a single new box, now in process of erection about a quarter of a mile to the south of Perth Station. Multiple-aspect colour-light signalling together with track circuiting will replace the existing signalling system. Work of laying cables from Hilton Junction to the new signalbox is now completed, including the section through Moncreiffe Tunnel.

W.R. Diesel Locomotive Named "Royal Naval Reserve"

To commemorate the centenary of the Royal Naval Reserve, British Railways, Western Region, "Warship" class diesel-hydraulic B-B locomotive No. D812 was named *The Royal Naval Reserve*, 1859-1959, at Paddington Station on November 13. The ceremony was performed by the First Sea Lord, Admiral Sir Charles Lambe.

Mr. R. F. Hanks, Chairman of the Western Area Board, British Transport Commission, introducing Admiral Sir Charles Lambe, spoke of the links between the Western Region, and its predecessor, the Great Western Railway, and the Royal Navy and Royal Naval Reserve, in serving Plymouth and other naval ports and the West Country, with its associations with British sea power.

The locomotive, he added, would work the 5.30 p.m. express, the "Mayflower," that evening from Paddington to Plymouth. It was a fine example of design and workmanship by the Swindon Works of the Western Region.

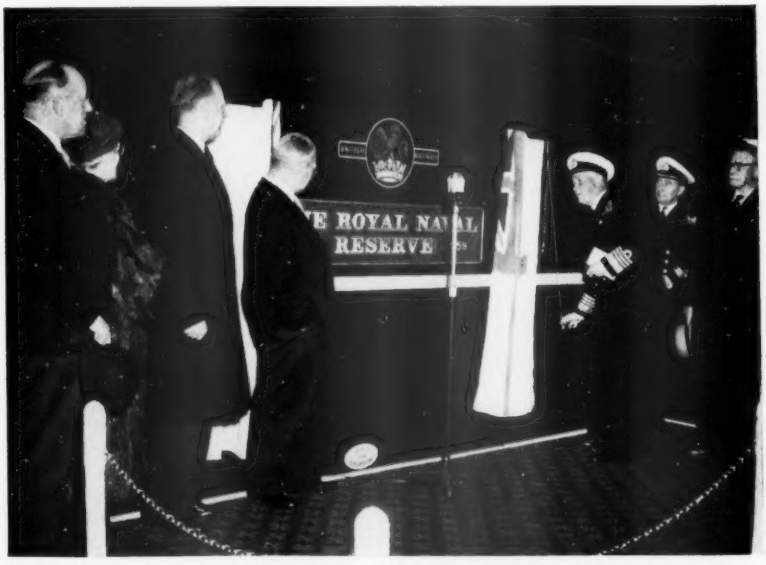
Admiral Sir Charles Lambe referred to the naming of the "Warship" class after ships of the Royal Navy, including No. D805, *Benbow*, in which he himself had served. He then unveiled the name-plate.

Sir Brian Robertson, Chairman of the British Transport Commission, expressed the pleasure of the Commission at commemorating the magnificent work of the Royal Naval Reserve.

Others present included: Mr. K. W. C. Grand, Member, British Transport Commission; Mr. John Ryan, Member, Western Area Board, B.T.C.; Mr. J. R. Hammond, General Manager, Western Region; Vice-Admiral Kaye Edden, the Admiral Commanding Reserves; Commodore J. Whayman, Royal Naval Reserve; Mr. J. H. Brebner, Public Relations Adviser, B.T.C.; and the following officers of the Western Region: Messrs. R. A. Smeddle, Chief Mechanical & Electrical Engineer; H. G. Bowles, Assistant General Manager (Administration); A. C. B. Pickford, Assistant General Manager (Traffic); L. W. Ibbotson, Assistant General Manager (Modernisation); A. E. Flaxman, Commercial Officer; C. W. Powell, Operating Officer; C. J. Rider, Public Relations & Publicity Officer; H. E. A. White, Running & Maintenance Officer; and S. A. S. Smith, Works Manager (Locomotives, Outdoor Machinery & Electrical) Swindon; and Mr. P. Peyman, Stationmaster, Paddington.

Trans-Zambesia Railway Co. Ltd.

The Chairman of the Trans-Zambesia Railway Co. Ltd., Mr. Vivian L. Oury, pointed out in his statement circulated with the report and accounts for the year ended December 31, 1958, that operating receipts were £1,107,571 compared with £1,067,292 in the previous year. Expenditure, including provision for renewals, was £829,227 (74·87 per cent of the gross receipts) against £790,021 (74·02 per cent). The net operating surplus at £278,344 compared with £277,271 for the year 1957.



At Paddington on November 13 (left to right): Mr. K. W. C. Grand, Mrs. John Ryan, Sir Brian Robertson, Mr. R. F. Hanks, Admiral Sir Charles Lambe, Commodore J. Whayman, and Mr. John Ryan

After service of 3½ per cent first debenture stock, there was a balance of £95,408 on revenue account, sufficient for payment of full interest of £75,000 on the £1,500,000 of 5 per cent income debenture stock and transfer of £20,408 to general reserve. During the year the company issued an amount of £87,400 3½ per cent first debenture stock in accordance with an undertaking and in exchange for a like amount advanced by the Government of Nyasaland to the company in the year 1954 for capital works.

Hire purchase agreements recently had been completed with the Government of the Federation of Rhodesia & Nyasaland for the acquisition, over a period of 33 years, of rolling stock to the value of £231,336.

The tonnage of goods carried was 805,058 compared with 845,695 tons in the previous year, a decrease of nearly 5 per cent.

Except for one year, it had previously been possible to report increased tonnages carried year by year over the railway during the whole of the post-war period. Although 1958 began with great promise, it became clear in the closing stages that the recession already experienced in other parts of the world was beginning to make itself felt in Central Africa. In the neighbouring territory of Nyasaland the state of political uncertainty had its inevitable effect on trading conditions. Much of the traffic carried over the railway originated in, or proceeded to, Nyasaland.

The results for the current year up to the end of August, Mr. Oury added, showed a serious decline in traffic and revenue compared with 1958. There had been an appreciable increase in expenditure. Unless there was a very substantial improvement during the last four months of the year, the current year's net receipts would be considered below those of the year under review. Every endeavour was being made to encourage remunerative traffics and to reduce operating expenses as far as it is possible.

Parliamentary Notes

Future of Railway Workshops

Mr. Francis Noel-Baker (Swindon—Lab.), on the motion for the adjournment at 11.30 p.m. on November 10, raised the question of the future of railway workshops. He said that all over the country there were railway workshops in which at present 150,000 industrial workers were employed, besides thousands of clerical and supervisory staffs, and 11,000 of those industrial workers were threatened with losing their jobs by 1961, as the modernisation programme went through.

They accepted in a very generous and realistic spirit that one of the inevitable results of the modernisation programme would be the contraction of the railway system as a whole, including the railway workshops. But they were worried that the Government might use its influence with the B.T.C. against the interests of the publicly-owned workshops, because of its doctrinaire bias against nationalisation. They had heard Ministers constantly urging that the railway workshops should compete with private firms. Many of his constituents felt that that might be quite unrealistic. They pointed to the fact that at present Government policy made it quite impossible for railway workshops to compete on a level with private firms. They might not raise capital or re-tool for new jobs, or do any outside work, even for the London Transport Executive. So long as the present obstacles and restrictions remained, many railwaymen would be convinced that talk of competition between B.R. workshops and private firms was humbug.

There were a series of contracts which had given rise to special apprehension. Last January orders were placed with the North British Locomotive Co. Ltd. for 36 diesel-hydraulic shunting locomotives. Previous orders had been placed for large numbers of Type "4" main-line diesel hydraulic locomotives and for Type "2" diesel-electric locomotives. What angered a number of his constituents at the time about this was that they produced the prototype Type "4," and they were building a number at the present time, and, so they told him, they were having to teach the North British engineers how to make this locomotive.

Apart from that, at a time when they were being told that there was no money available to re-equip and re-tool British Railway workshops for new jobs, they learned that during this year the North British Locomotive Co. Ltd. borrowed £1¾ million from the Treasury on what *The Economist* called surprisingly favourable terms, and borrowed a further £500,000 from another private firm and arranged to borrow as an overdraft from its bankers a further £1½ million, making a total of £3¾ million since the beginning of the year. According to the latest statement by the new Vice-Chairman of the firm, Lord Reith, this company appeared to be in the process of going bankrupt. *The Economist* had said: "There will have to be a very considerable improvement indeed if these loans can be considered safe."

In those circumstances, it was surprising that railway workshop staff were rather cynical when they were told that there was no money available for re-equipping their own shops.

He was well aware that the Member for Gloucester (Mr. Diamond) took a close interest in the Gloucester Railway Carriage & Wagon Co. Ltd. Works, and Mr. Creech Jones of Wakefield had drawn his attention to the fact that in his constituency the firm of Charles Roberts & Co. Ltd. for many years and with great skill had made wagons for the British railways.

Mr. J. Diamond : It is the responsibility of the Government to see that all these workshops are fully engaged . . . and that it is important that the boards of management should know what the Government are going to do.

Mr. F. Noel-Baker agreed, but pointed out that there was bound to be a reduction in the number of wagons on the road, and he could only recommend that the constituents concerned see whether they could start to take over other types of work.

New Orders for British Railways

Since last January until last Saturday, orders for 307 new locomotives had been placed with British Railways, and 456 with private firms. There had also been enormous orders to private firms for diesel units and other rolling stock and for a wide range of components which many railway shop men and their unions believed could have been made in British Railways workshops.

On Saturday there was an announcement that British Railways planned to build another 390 diesel train vehicles. He was glad that 50 of these went to Swindon. He would hesitate to complain about the 282 that went to the constituency of his right hon. friend (his father) the Member for Derby South (Mr. Philip Noel-Baker).

The new Minister of Transport (Mr. Ernest Marples) and the new Parliamentary Secretary (Mr. John Hay) could do a great deal for the industry as a whole if they would let it know exactly what the Government's intentions were. They should have a good look at the resources of British Railways and the possibility of re-equipping them to do the new jobs which inevitably must replace the old jobs—(he was thinking particularly of boilermakers and people of that kind who would inevitably be redundant)—and reassure them that the Government would make the maximum possible use of these workshops, and not, as some railwaymen feared, obstruct them, dismantle them, and finally sell them up.

Mr. John Hay, Parliamentary Secretary to the Ministry of Transport, said that he could reassure Mr. F. Noel-Baker that to the letter he had sent to the Chairman of the B.T.C., Sir Brian Robertson, on this subject he would receive a very full reply. They had to remember that British Railways inherited on nationalisation a mass of repairing and manufacturing capacity for the four former main-line companies, and that this capacity was far more than they needed. One of the points made in favour of nationalisation that one could integrate that sort of capacity and make a more efficient industry. That was the situation that faced the Commission when it was set up in 1947.

Mr. Hay then referred to the modernisation programme, one of the principal features of which was introduction of diesel locomotives on most of the main lines, followed by electrification. He was told that day that the last steam locomotive being built for British Railways was at present being built, and would soon be going on the tracks.

Mr. F. Noel-Baker : At Swindon.

Mr. Hay : Yes. The second feature is that the railway system will have to contract. This is a process causing some difficulty. The third factor is that inevitably there has to be a reduction in the wagon fleet.

Directions by Minister

The power of giving direction was a pretty strong weapon, which was conferred on the Minister by the various nationalisation Statutes. It was a kind of sledge-hammer kept in some dark cupboard in the Ministry in Berkeley Square, which could be used, if the occasion arose, on the Commission. Fortunately, only on one occasion since 1947 has it been necessary for this sledge-hammer to be brought out. It was used in April, 1952, to instruct the Commission not to proceed with a fares increase; and it was used a second time in August of that year to direct the Commission to disregard the previous decision.

The Minister and his predecessors had frequently made it plain that a direction would not be used to the B.T.C. requiring it to put any proportion of its building or repair work to any particular workshop, nor would the Minister require that the Commission should use its own facilities in preference to those of any private firm or company. In the Government view, it was entirely a matter for the Commission, for it was a commercial undertaking engaged in a competitive enterprise, and they do not propose to interfere with its commercial judgment.

Mr. Hay then assured Mr. Noel-Baker that the Commission had made the position clear on a number of occasions, the most recent being May 14 last, when it issued a notice which made it plain that it did not intend any wholesale closing of the railway workshops. The Commission stated that these workshops would continue for the manufacture of the equipment for which they were suitable and would also continue for the repair of all equipment. It was also made plain that the reduction in workshop capacity which must go on, because there was too much of it, would be by a very carefully phased programme, to which the Commission was adhering.

The Commission made it clear that throughout this programme it would keep in the closest touch with the unions.

Mr. Hay added : My advice is that in May

XUM

New Marshalling Yard and Re-signalling at Perth

Automatic route-setting and retardation of wagons

The development of rail facilities at Perth, British Railways, Scottish Region, centre round the provision of a new mechanised marshalling yard and a power signalling installation. At present the reception and despatch of freight traffic entering, leaving or passing through the Perth area has to be spread over two or three yards where shunting is relatively slow and expensive in both engine and manpower. Many of the wagons have to be handled more than once, and in some cases transferred from one yard to another. By reason of their location and design none of these freight marshalling facilities was suitable for development; consequently it was necessary to find a new site for a single mechanised marshalling yard capable of dealing with the whole of the traffic requiring to be handled. The site for this yard is located alongside the main line between Perth and Stanley Junction.

Yard Layout

The site is semi-circular covering 38 acres and is well suited to the formation of a marshalling yard. The yard, which covers a length of more than a mile from north to south and some 200 yd. from east to west at the widest, contains 30 sorting sidings and six arrival lines for receiving trains before sorting.

An incoming train will enter one of a group of six reception lines, where the locomotive will be detached. From there it will be drawn by a diesel shunting engine to a headshunt, where the wagons will be examined, uncoupled, and listed according to destination. The list will be passed by pneumatic tube to an operator sitting at a console in an elevated control tower, who will press a series of keys to transfer to punched tape the siding numbers into which the wagons are required to pass.

Automatic Point Operation

The train will then be propelled over a hump, the individual wagons separating as they pass on to the falling gradient. Points will operate automatically to direct the wagons into the appropriate sorting siding, while their rate of progress will be regulated by retarders. While both points and retarders operate automatically, the operator in the control tower can take overriding action if necessary, all controls being concentrated on the console at which he sits.

The 30 double-ended sorting sidings in the main yard will enable the majority of the wagons to be directed on to the appropriate outgoing trains without any further shunting. Two small groups of secondary sorting sidings will be provided to enable local trains to be made up into proper order for serving a series of wayside stations. Trains will be able to depart direct from the new yard, either to the north or the south.

Progress of Work

Having acquired the land, the engineering work to prepare the site for the tracks was put in hand in February, 1956. The laying of the sidings and other lines, which amount in all to 15 miles of track, was done entirely by the railway engineering staff and was commenced in November, 1957. The track of the standard sidings was laid in 60-ft. lengths as recovered from renewals on main lines, and the switches and crossings were laid by mobile crane. The track laying is now almost complete. The next phase of the civil engineering work will be the erection of the control tower, the yardmaster's office and other staff buildings.

Work is in progress on the installation of electro-pneumatic wagon speed retarders. These will be automatically controlled from the control tower. The equipment, which is being supplied and installed by the Westinghouse Brake & Signal Co. Ltd., includes air compressors and electronic equipment. A stand-by diesel generator is to be provided so that alternative power is available in the event of an electricity failure.

Perth Re-signalling Scheme

Within the area bounded by Stanley Junction, Barnhill and Hilton Junction Signalboxes (all inclusive) there are at present 13 mechanical signalboxes, all of which are to be closed. Control of all movements over running lines within this area will be concentrated upon a single new box, now in process of erection about a quarter of a mile to the south of Perth Station. Multiple-aspect colour-light signalling together with track circuiting will replace the existing signalling system. Work of laying cables from Hilton Junction to the new signalbox is now completed, including the section through Moncreiffe Tunnel.

W.R. Diesel Locomotive Named "Royal Naval Reserve"

To commemorate the centenary of the Royal Naval Reserve, British Railways, Western Region, "Warship" class diesel-hydraulic B-B locomotive No. D812 was named *The Royal Naval Reserve*, 1859-1959, at Paddington Station on November 13. The ceremony was performed by the First Sea Lord, Admiral Sir Charles Lambe.

Mr. R. F. Hanks, Chairman of the Western Area Board, British Transport Commission, introducing Admiral Sir Charles Lambe, spoke of the links between the Western Region, and its predecessor, the Great Western Railway, and the Royal Navy and Royal Naval Reserve, in serving Plymouth and other naval ports and the West Country, with its associations with British sea power.

The locomotive, he added, would work the 5.30 p.m. express, the "Mayflower," that evening from Paddington to Plymouth. It was a fine example of design and workmanship by the Swindon Works of the Western Region.

Admiral Sir Charles Lambe referred to the naming of the "Warship" class after ships of the Royal Navy, including No. D805, *Benbow*, in which he himself had served. He then unveiled the name-plate.

Sir Brian Robertson, Chairman of the British Transport Commission, expressed the pleasure of the Commission at commemorating the magnificent work of the Royal Naval Reserve.

Others present included: Mr. K. W. C. Grand, Member, British Transport Commission; Mr. John Ryan, Member, Western Area Board, B.T.C.; Mr. J. R. Hammond, General Manager, Western Region; Vice-Admiral Kaye Edden, the Admiral Commanding Reserves; Commodore J. Whayman, Royal Naval Reserve; Mr. J. H. Brebner, Public Relations Adviser, B.T.C.; and the following officers of the Western Region: Messrs. R. A. Smeddle, Chief Mechanical & Electrical Engineer; H. G. Bowles, Assistant General Manager (Administration); A. C. B. Pickford, Assistant General Manager (Traffic); L. W. Ibbotson, Assistant General Manager (Modernisation); A. E. Flaxman, Commercial Officer; C. W. Powell, Operating Officer; C. J. Rider, Public Relations & Publicity Officer; H. E. A. White, Running & Maintenance Officer; and S. A. S. Smith, Works Manager (Locomotives, Outdoor Machinery & Electrical) Swindon; and Mr. P. Peyman, Stationmaster, Paddington.

Trans-Zambesia Railway Co. Ltd.

The Chairman of the Trans-Zambesia Railway Co. Ltd., Mr. Vivian L. Oury, pointed out in his statement circulated with the report and accounts for the year ended December 31, 1958, that operating receipts were £1,107,571 compared with £1,067,292 in the previous year. Expenditure, including provision for renewals, was £829,227 (74·87 per cent of the gross receipts) against £790,021 (74·02 per cent). The net operating surplus at £278,344 compared with £277,271 for the year 1957.

At Paddington on November 13 (left to right): Mr. K. W. C. Grand, Mrs. John Ryan, Sir Brian Robertson, Mr. R. F. Hanks, Admiral Sir Charles Lambe, Commodore J. Whayman, and Mr. John Ryan

After service of 3½ per cent first debenture stock, there was a balance of £95,408 on revenue account, sufficient for payment of full interest of £75,000 on the £1,500,000 of 5 per cent income debenture stock and transfer of £20,408 to general reserve. During the year the company issued an amount of £87,400 3½ per cent first debenture stock in accordance with an undertaking and in exchange for a like amount advanced by the Government of Nyasaland to the company in the year 1954 for capital works.

Hire purchase agreements recently had been completed with the Government of the Federation of Rhodesia & Nyasaland for the acquisition, over a period of 33 years, of rolling stock to the value of £231,336.

The tonnage of goods carried was 805,058 compared with 845,695 tons in the previous year, a decrease of nearly 5 per cent.

Except for one year, it had previously been possible to report increased tonnages carried year by year over the railway during the whole of the post-war period. Although 1958 began with great promise, it became clear in the closing stages that the recession already experienced in other parts of the world was beginning to make itself felt in Central Africa. In the neighbouring territory of Nyasaland the state of political uncertainty had its inevitable effect on trading conditions. Much of the traffic carried over the railway originated in, or proceeded to, Nyasaland.

The results for the current year up to the end of August, Mr. Oury added, showed a serious decline in traffic and revenue compared with 1958. There had been an appreciable increase in expenditure. Unless there was a very substantial improvement during the last four months of the year, the current year's net receipts would be considered below those of the year under review. Every endeavour was being made to encourage remunerative traffics and to reduce operating expenses as far as it is possible.

Parliamentary Notes

Future of Railway Workshops

Mr. Francis Noel-Baker (Swindon—Lab.), on the motion for the adjournment at 11.30 p.m. on November 10, raised the question of the future of railway workshops. He said that all over the country there were railway workshops in which at present 150,000 industrial workers were employed, besides thousands of clerical and supervisory staffs, and 11,000 of those industrial workers were threatened with losing their jobs by 1961, as the modernisation programme went through.

They accepted in a very generous and realistic spirit that one of the inevitable results of the modernisation programme would be the contraction of the railway system as a whole, including the railway workshops. But they were worried that the Government might use its influence with the B.T.C. against the interests of the publicly-owned workshops, because of its doctrinaire bias against nationalisation. They had heard Ministers constantly urging that the railway workshops should compete with private firms. Many of his constituents felt that that might be quite unrealistic. They pointed to the fact that at present Government policy made it quite impossible for railway workshops to compete on a level with private firms. They might not raise capital or re-tool for new jobs, or do any outside work, even for the London Transport Executive. So long as the present obstacles and restrictions remained, many railwaymen would be convinced that talk of competition between B.R. workshops and private firms was humbug.

There were a series of contracts which had given rise to special apprehension. Last January orders were placed with the North British Locomotive Co. Ltd. for 36 diesel-hydraulic shunting locomotives. Previous orders had been placed for large numbers of Type "4" main-line diesel hydraulic locomotives and for Type "2" diesel-electric locomotives. What angered a number of his constituents at the time about this was that they produced the prototype Type "4," and they were building a number at the present time, and, so they told him, they were having to teach the North British engineers how to make this locomotive.

Apart from that, at a time when they were being told that there was no money available to re-equip and re-tool British Railway workshops for new jobs, they learned that during this year the North British Locomotive Co. Ltd. borrowed £1¾ million from the Treasury on what *The Economist* called surprisingly favourable terms, and borrowed a further £500,000 from another private firm and arranged to borrow as an overdraft from its bankers a further £1½ million, making a total of £3¾ million since the beginning of the year. According to the latest statement by the new Vice-Chairman of the firm, Lord Reith, this company appeared to be in the process of going bankrupt. *The Economist* had said: "There will have to be a very considerable improvement indeed if these loans can be considered safe."

In those circumstances, it was surprising that railway workshop staff were rather cynical when they were told that there was no money available for re-equipping their own shops.

He was well aware that the Member for Gloucester (Mr. Diamond) took a close interest in the Gloucester Railway Carriage & Wagon Co. Ltd. Works, and Mr. Creech Jones of Wakefield had drawn his attention to the fact that in his constituency the firm of Charles Roberts & Co. Ltd. for many years and with great skill had made wagons for the British railways.

Mr. J. Diamond : It is the responsibility of the Government to see that all these workshops are fully engaged . . . and that it is important that the boards of management should know what the Government are going to do.

Mr. F. Noel-Baker agreed, but pointed out that there was bound to be a reduction in the number of wagons on the road, and he could only recommend that the constituents concerned see whether they could start to take over other types of work.

New Orders for British Railways

Since last January until last Saturday, orders for 307 new locomotives had been placed with British Railways, and 456 with private firms. There had also been enormous orders to private firms for diesel units and other rolling stock and for a wide range of components which many railway shop men and their unions believed could have been made in British Railways workshops.

On Saturday there was an announcement that British Railways planned to build another 390 diesel train vehicles. He was glad that 50 of these went to Swindon. He would hesitate to complain about the 282 that went to the constituency of his right hon. friend (his father) the Member for Derby South (Mr. Philip Noel-Baker).

The new Minister of Transport (Mr. Ernest Marples) and the new Parliamentary Secretary (Mr. John Hay) could do a great deal for the industry as a whole if they would let it know exactly what the Government's intentions were. They should have a good look at the resources of British Railways and the possibility of re-equipping them to do the new jobs which inevitably must replace the old jobs—(he was thinking particularly of boilermakers and people of that kind who would inevitably be redundant)—and reassure them that the Government would make the maximum possible use of these workshops, and not, as some railwaymen feared, obstruct them, dismantle them, and finally sell them up.

Mr. John Hay, Parliamentary Secretary to the Ministry of Transport, said that he could reassure Mr. F. Noel-Baker that to the letter he had sent to the Chairman of the B.T.C., Sir Brian Robertson, on this subject he would receive a very full reply. They had to remember that British Railways inherited on nationalisation a mass of repairing and manufacturing capacity for the four former main-line companies, and that this capacity was far more than they needed. One of the points made in favour of nationalisation that one could integrate that sort of capacity and make a more efficient industry. That was the situation that faced the Commission when it was set up in 1947.

Mr. Hay then referred to the modernisation programme, one of the principal features of which was introduction of diesel locomotives on most of the main lines, followed by electrification. He was told that day that the last steam locomotive being built for British Railways was at present being built, and would soon be going on the tracks.

Mr. F. Noel-Baker : At Swindon.

Mr. Hay : Yes. The second feature is that the railway system will have to contract. This is a process causing some difficulty. The third factor is that inevitably there has to be a reduction in the wagon fleet.

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The Commission made it clear that throughout this programme it would keep in the closest touch with the unions.

Mr. Hay added : My advice is that in May

of this year an agreement was reached between the Commission and the unions which provided that if, as a consequence of this policy, men had to be transferred to other work at a lower rate of pay than that which they were previously receiving, then for three years after that time they would continue to receive their standard time-work rate of pay. Further, if anyone had to be discharged because he was genuinely redundant and could not be absorbed elsewhere in the Commission's activities, then a lump sum payment of compensation would be made if the man had been employed for three years or more.

This policy of contact with the unions over redundancy, I am advised, goes right down to the Regional level, and the evidence which we have is that it is working extremely well. It looks to me, as someone coming fresh to the problem, that the Commission in the whole of this matter is behaving like a good employer.

As to redundancy, this must not be considered as a matter entirely in isolation. It was not the case that there were no jobs awaiting anybody formerly employed in the railway workshops who became unemployed because of this policy. There were plenty of jobs available in this country for skilled engineers. In engineering and similar trades in October there were no fewer than 28,000 unfilled vacancies.

The position at Swindon was that they had on hand orders for 125 diesel locomotives, over half of them being of the main-line type, and some 84 diesel multiple-unit vehicles.

The words of the B.T.C. letter were "The workshops are very busy, and the existing orders will ensure a high level of activity for some considerable time."

He did not think there was any need for apprehension, still less for uncertainty, about the future.

Questions in Parliament

Nationalised Industries

Sir Thomas Moore (Ayr—U.) asked the Prime Minister on November 12, what consideration he had given to the present relationship between Parliament and the nationalised industries, and what plan he had in mind for bringing that relationship into line with the wishes of Members of all parties.

Mr. Harold Macmillan: I am aware of the concern felt in all parts of the House that Members should have adequate opportunities of expressing their views on the working of the nationalised industries. The precise arrangements needed for this purpose have presented a problem to which no satisfactory solution has yet been found. The Leader of the House (Mr. R. A. Butler) proposes to discuss the matters with those concerned—including, I understand, yourself, Mr. Speaker, and through the usual channels (the Party Whips). In undertaking these consultations, he will take account of the Report of the Select Committee on the Nationalised Industries published in the last Parliament and also of any views expressed by private Members.

Sir T. Moore asked the Prime Minister and the Leader of the House to bear in mind that "nowadays, the Government and we who support the Government on this side of the House are very largely indentified in the public mind with the nationalised industries, and yet, as he himself has said, we find out little about them, whether they are a failure or a success? Will the discussions bring about a better state of affairs?"

Mr. Macmillan: I realise that nationalisation is rather a sensitive subject at the moment, on both sides, and I must beware of precipitate action.

Mr. E. Shinwell (Easington—Lab.): Will the Prime Minister say how the Leader of the House proposes to consult, apart from the usual channels, with back-benchers interested in this subject? Does he propose to approach them and ask for their individual opinion, or are we to approach him?

Mr. Macmillan: I understand it will be what is called nowadays a two-way traffic. Mr. Butler has indicated that private Members have not been backward in coming forward.

Mr. R. Mellish (Bermondsey—Lab.): Many in the House feel that the time has really arrived when the interests of the consumer are the all-important factor here, and we, as Members of Parliament, have a right to put questions and, whether they are nationalised industries or not, in this instance we demand the right to be heard.

Mr. Macmillan: It seems to me that we are coming very close together. The "one nation" is being born.

Mr. M. Stewart (Fulham—Lab.): The Prime Minister, a few months ago, in the last Parliament, gave a supplementary answer to the effect that none of the nationalised industries paid its way. Is he aware that that statement was untrue? Will he, therefore, include in the arrangements he is making provision to ensure that he and his colleagues are rather better informed on the nationalised industries?

Mr. Macmillan: It is true to say that very heavy charges fall upon the revenue and the taxpayer through the nationalised industries.

Mr. S. Silverman (Nelson & Colne—Lab.): Many essential industries and services on which the economic prosperity and the future of the nation depend are at present not nationalised. Will the Prime Minister consider a scheme to bring about some measure of accountability to the House of Commons for those industries?

Mr. Macmillan: I ooserve that upon many industries in general many questions are put down to the Board of Trade or to the Treasury. As I understand it, this is not a matter really of the merits or demerits of nationalisation. The question is whether we in the House of Commons can find a method, by general agreement, to have more informed debates or better information. We know there are difficulties in the matter. I think that the procedure which I have outlined is one which the House can use to reach a balanced decision on what is the best procedure for the House to be informed, without undue or improper interruption in the detailed management of these industries.

Railway Superannuitants

Dr. Horace King (Itchen, Southampton—Lab.) asked the Chancellor of the Exchequer on November 10, whether he would reconsider the claims made to him in the last Parliament by railway superannuitants for pension increases comparable to those awarded to other public service pensioners.

Mr. Heathcoat Amory: No. Superannuation arrangements are matters within the responsibility of the British Transport Commission.

Dr. King: As the B.T.C. cannot give these veteran railwaymen the increases which other public service pensioners have received under the Chancellor's pensions increase legislation, does he not think that the time has now come to accept a moral obligation towards this group of public service pensioners who have had no increases to meet the rising cost of living?

Mr. Amory: I still feel that this is a matter squarely within the jurisdiction of the B.T.C. under its statutes.

Mr. D. Price (Eastleigh—Con.): Most railwaymen do not appreciate the subtle distinctions being made by Parliament between a nationalised industry, such as the railways, and a service which is run directly, such as the Post Office. They regard themselves just as much public servants as postmen do.

Mr. Amory: That may be so, but, of course, in our actions we are bound by the statutes which lay down what are the responsibilities of the various nationalised boards.

Staff and Labour Matters

Railway Workshop Staff

Claims have been received by the British Transport Commission from the Employees' Side of the Railway Shopmen's National Council for a substantial increase in the rates of pay of railway workshop staff and also for a 40-hr. week for railway shopmen. The latter claim is a renewal of that presented in January, 1958, which was rejected, and follows comparable claims made in the outside engineering and shipbuilding industries. A reply to the 40-hr. week claim for shipbuilding workers was given by the Shipbuilding Employers' Federation on November 18, but at the time of going to press the nature of the reply was not known.

The last increase in pay for railway workshop staff was given with effect from June 30, 1958, and the current claim is in line with that lodged by the N.U.R. for a substantial increase in rates of pay for railway salaried and conciliation staff, a reply to which will be given early next month.

CROMPTON PARKINSON LIMITED DIVIDEND.—A final ordinary dividend of 9 per cent for the year ended June 30, 1959, is recommended by the Board of Crompton Parkinson Limited. The interim ordinary dividend was 5 per cent. The interim and ordinary dividends paid during the preceding year amounted respectively to 5 and 7 per cent.

BRITISH EXHIBITION IN NEW YORK, 1960.—Arrangements have been concluded to broaden the base of British Overseas Fairs Limited to equip it for organising British trade fairs overseas. The British Exhibition in New York next June will be the biggest and most important display of British consumer and engineering products ever to be held overseas. Further projects are under consideration in other parts of the world. The Presidents of the Association of British Chambers of Commerce and of the National Union of Manufacturers, Mr. Frank Bower and Mr. M. D. Oliphant, respectively, have been elected to the Board of British Overseas Fairs Limited (B.O.F.). The Grand Council of the Federation of British Industries will, as before, determine the programmes of British trade fairs overseas, but it will, in future, be advised by a new Export Promotion Policy Committee of which Sir Leslie Gamage is Chairman. Representatives of the A.B.C.C. and N.U.M. will attend the meetings of this Committee. B.O.F. Limited will remain a private company, but to provide working capital and to avoid the need for raising guarantee funds for individual projects, 100,000 ordinary shares of £1 each, 10s. paid, are being issued to certain members of the F.B.I., to the F.B.I. itself and to the N.U.M. The main task of B.O.F. at present is the organisation of the British Exhibition & Trade Fair in New York at the Coliseum Exhibition on June 10-26. The Executive Committee includes Lord Rootes, Chairman of the Dollar Exports Council, Mr. W. H. McFadzean, President of the F.B.I., and Sir Norman Kipping, Director-General of the F.B.I., and Chairman of B.O.F. Limited.

Contracts and Tenders

Miscellaneous contracts for British Railways and London Transport Executive

The London Transport Executive has placed a contract with Whyatt (Builders) Limited for a public travel enquiry office and shelters for Green Line coach passengers at Eccleston Bridge, Victoria. The contract is valued at approximately £10,500 and the work is due for completion in May, 1960. Eccleston Bridge is at present being partially reconstructed and temporary Green Line stops are in use at Elizabeth Bridge nearby. The opportunity is being taken by London Transport to provide new passenger amenities of an improved standard at Eccleston Bridge, from which there are normally over 500 coach departures a day.

Courtaulds Limited has placed an order with Heenan & Froude Limited, of Worcester, for more than 70 Heenan-Dynamatic variable-speed couplings for use in the production of man-made fibres. Other recent orders for couplings placed with Heenan & Froude Limited include one for 13 from Herbert Morris Limited, of Loughborough, for use with the conveyors at the British Transport Commission rail-welding plant at Motherwell and another for nine, with their control gear, from Gridway Steel Construction Co. Ltd., of Birmingham, for use with bank-note destruction conveyors at the Bank of England.

British Railways, London Midland Region, has placed the following contracts:

Weatherall Roofing Co. Ltd.: supplying and laying asphalte roof coverings at British Transport Commission Headquarters, 222, Marylebone Road, London, N.W.1

S. & C. Walmsley Limited: sub-contract for supply and erection of structural steelwork for the construction of a new forwarded shed and road motor workshops at Bradford Street, Walsall

Leonard Fairclough Limited: extension of Road Motor Workshops at Edge Hill, Liverpool

Motherwell Bridge & Engineering Company: supply, fabrication and delivery of steelwork for bridge No. 7 at new marshalling yard, Kingmoor, Carlisle

Turriff Construction Corporation Limited: reconstruction of Coventry Station

D. B. Evans (Bilston) Limited: extension of steel foundry at Crewe Works.

British Railways, Scottish Region, has placed the following contracts:

James Campbell & Son (Building Contractors), Ltd.: diesel maintenance and fuelling facilities, Inverness

Ransomes & Rapier Limited: one 8-ton fork truck for use at Glasgow goods depots.

T. Boland & Co. Ltd.: improved staff accommodation, St. Margarets Motive Power Depot, Edinburgh

Kinnear Moodie & Co. Ltd.: earthworks, and retaining wall, Airdrie, and reconstruction of Cardross Road overbridge, between Craigendoran and Helensburgh Central.

The Special Register Information Service Export Services Branch, Board of Trade, has received calls for tenders as follow :

From Canada :

1 industrial type diesel-electric locomotive, tractive effort not less than 25,000 lb. at 5 m.p.h.

The issuing authority is the Manitoba Hydro-Electric Board. The tender No. is 78. Bids should be sent to Mr. D. M. Stephens, Chairman & General Manager, the Manitoba Hydro-Electric Board, P.O. Box 815, Winnipeg 1, Manitoba. The closing date is December 8, 1959. The Board of Trade reference is ESB/26451/59.

From Thailand :

1,000 sets of wheels and axles, as per specification and drawings No. P1-2137/1, LV19-2017/2 and MR 2002.

The issuing authority and address to which bids should be sent is the State Railway of Thailand, Yod Se, Bangkok. Quotations should be made in Baht to include delivery to Makkasan Workshop and c.i.f. Bangkok in foreign currency. The closing date is December 3, 1959. The Board of Trade reference is ESB/26237/59.

Further details relating to the above tenders together with photo-copies of tender documents can be obtained from the Branch (Lacon House, Theobalds Road, W.C.1).

British-made Wheels for China

Part of a large order for wheels and tyres for the Chinese Republic Railways awaiting despatch from the Rotherham works of the Steel, Peech & Tozer branch of the United Steel Companies Limited. Shipment is from Liverpool to China ports

Notes and News

Farewell Luncheon to Mr. Henri Ernst.—A farewell luncheon is being arranged for Mr. Henri Ernst, Chief of the Swiss National Tourist Office in the United Kingdom, on his retirement. The luncheon will be held the Waldorf Hotel, Aldwych, W.C.2, on December 8.

Crossley Brothers Limited Results.—The consolidated net trading profit of £94,615, by Crossley Brothers Limited, is down by 12 per cent compared with the previous year, although the parent company shows improved net figures (balance £79,014 compared with £72,153). The same dividends are proposed as during recent years, but on a reduced cover.

Institute of Transport Visual Aids Meeting.—There will be a Visual Aids meeting of the Institute of Transport at 80, Portland Place, W1, on November 25, at 6.15 p.m., at which the film " Live and let live " (National Dock Labour Board) and " On the track of efficiency " (British Insulated Callender's Construction Co. Ltd.) will be viewed and discussed. It is hoped that each film will be introduced by a speaker from the sponsoring body, and the meeting will be open to all grades of members of the Institute and to invited guests.

Railway Benevolent Institution.—At a meeting on November 16 the board of the Railway Benevolent Institution granted annuities to four widows and one member involving an additional liability of £78 per annum; 105 gratuities were also granted amounting to £1,002 to meet cases of immediate necessity. Grants made from the Casualty Fund during October amounted to £1,483. As from January 1, 1960 the new standard contribution to the Casualty Fund will be 2s. a year. The benefits are on a generous scale, about 10s. a week whilst off duty as a result of an accident, £8 to the widow of a member dying from natural causes, and £10 to the widow or other next of kin of a member killed by accident.

British Standards for Antifreeze.—Three new British Standards cover formulations which have been proved in use as corrosion-inhibited ethanediol for water-cooled engines. The user should seek advice from the engine manufacturer regarding which type of antifreeze is suitable for his particular

engine. B.S. 3150 covers ethanediol (ethylene glycol) inhibited with triethanolammonium orthophosphate and sodium mercaptobenzothiazole. This formulation is already well known as "D.T.D. 779." B.S.3151 covers ethanediol inhibited with sodium benzoate and sodium nitrite. B.S.3152 covers ethanediol inhibited with sodium tetraborate (borax) and is a formulation widely used in the U.S.A. Copies may be obtained from the British Standards Institution, 2, Park Street, London, W.1. B.S.3150 and 3151, price 4s. 6d. each. B.S.3152, price 4s.

Gloucester Railway Carriage & Wagon Co. Ltd. Profits Down.—The group profit of £393,580 by the Gloucester Railway Carriage & Wagon Co. Ltd. is substantially less than the record profit of £493,686 the previous year. According to the statement of the Chairman, General Sir William Morgan, this is partly because of a falling-off in orders for rolling stock in the home market.

Expandite Limited Opens Northern Depot.—Expandite Limited, Chase Road, London, N.W.10, has opened a northern factory and depot at Trafford Park Road, Trafford Park, Manchester, 17. Telephone: Trafford Park 1285/6. Stocks of all materials will be available at all times. The Depot will also service Philplug Limited and Sealanco Limited, both of which are covered by the Group Sales Service.

New Factory for Aerox Limited Engineering Section.—As a result of increasing demand for aeration, filtration, and fluidising equipment, Aerox Limited has acquired a larger factory for its Engineering Section at Chalford, Stroud, Gloucestershire, where the company will manufacture all forms of equipment incorporating porous ceramic filter elements. These elements will continue to be made at the main Hillington (Glasgow) plant. The Engineering Section has now moved from Crawley.

Minister of Transport Visits Southern Region Termini.—Mr. Ernest Marples, Minister of Transport, last week visited Cannon Street, London Bridge and Waterloo Stations, British Railways, Southern Region, to study peak-hour traffic operation. He travelled from Cannon Street to London Bridge by suburban electric train. He also inspected the Cannon Street signalbox. The illustration shows him at London Bridge with Mr. C. P. Hopkins, General Manager, Southern Region Mr. S. T. Stanbridge, Stationmaster, London Bridge, and Sir Philip Warter, Chairman of the Southern Area Board British Transport Commission.

Prison Sentences for Station Cloakroom Fraud.—Three men employed in the luggage cloakroom at Charing Cross Station, British Railways Southern Region, were recently sentenced at Bow Street Magistrates' Court London, to imprisonment ranging from six weeks to two months, after each had admitted stealing a total of £2 5s. and embezzling 1s. 6d. belonging to their employers, the British Transport Commission. For the prosecution it was stated that all three had been issuing cloakroom tickets twice, keeping the extra money.

Record Overseas Tourist Traffic.—Figures published by the British Travel & Holidays Association show that 138,900 overseas visitors came to Britain in September, an increase of 13 per cent over the total for September, 1958. Visitors from Europe showed an increase of 11 per cent from 52,300 to 58,200. There were 38,700 visitors from the U.S.A., compared with 36,950 in September of last year. In the first nine months of this year overseas visitors to Britain totalled 1,160,230, an increase of 10 per cent over the total in the same period of 1958.

First International Pipes & Pipelines Exhibition.—To demonstrate the recent technical progress in the design and construction of pipes, pipelines, and ancillary equipment, the journal *Pipes & Pipelines* is to sponsor the first International Pipes & Pipelines Exhibition to be held at Earls Court, London, on May 30—June 2, 1960. Nearly all the available stand space is reported to have been reserved by some 90 British, Continental, and American firms. Details may be obtained from Scientific Surveys Limited, 97, Old Brompton Road, London, S.W.7, tel. : Knightsbridge 9368.

Work Begun on Combined Passenger Station at Leeds.—Preliminary work in connection with the scheme to combine Leeds City and Leeds Central Passenger Stations, British Railways, North Eastern Region, involves re-construction of the bridge and tracks over the Leeds-Liverpool Canal. It has now started. Until December 13 the bridge is only partially available for traffic. During this period access to some of the platform lines at Leeds City is interrupted for varying periods. Alterations have been necessary in platform arrangements and timing of certain trains. Normal connections are maintained. No train has been re-timed to start earlier than its former advertised departure time. An illustrated article and editorial comment on the scheme were published in our August 28 issue.

Mr. Ernest Marples with Sir Philip Warter and Mr. C. P. Hopkins at London Bridge Station, Southern Region, inspecting operation of peak-hour traffic

British Oxygen Co. Ltd. New Head Office.—The British Oxygen Co. Ltd. is to lease a large office building for its head office near Hammersmith, London, W. Construction will start almost immediately. It is expected that the move from the premises in St. James's, S.W.1, will take place in two or three years' time.

London Midland Region Winter Timetables.—The diesel train from York *via* Nottingham, Leicester, and Woodford Halse, London Midland Region, is due at Banbury at 2.31 p.m. It does not, therefore, connect at Banbury with the through Birkenhead to Bournemouth train, as was stated in error in our November 13 issue. The Bournemouth train is booked to leave Banbury at 1.45 p.m. Northbound, the 9.30 a.m. from Bournemouth West is due at Banbury at 1.19 p.m., and the diesel train for York leaves at 3.12 p.m.

Transport Museum at Former London Transport Garage.—The former London Transport Garage at Clapham, taken over by the British Transport Commission for use as a future transport museum under the Curator of Historical Relics, will ultimately house many of the Commission's large relics, including the important collection of royal vehicles dating from 1842 to 1903. The work of moving these vehicles to the garage is now in progress.

Institute of Fuel, Melchett Lecture.—The Melchett Lecture for 1959 on "Surface: A Common Problem for Research and Engineering in Fuel Technology" will be delivered to the Institute of Fuel by Dr. Ing. P. O. Rosin, at 5 p.m. on November 25, at the Institution of Civil Engineers, Great George Street, London, S.W.1. The meeting will be open to the public and admission is free.

George Turton, Platts & Co. Ltd. Dividend Cut.—George Turton, Platts & Co. Ltd. is cutting its less-tax dividend from 27½ per cent to 20 per cent for the year to July 31, 1959, with a final of 10 per cent (17½ per cent), but is also paying this time a capital distribution of 3d. per 5s. share, non-taxable, from trade investment realisation surplus. Profit fell from £218,670 to £77,409, and after tax of £22,755 (£93,770), the balance is down from £124,900 to £54,654, to which is added £5,007 (nil) previous tax-over-provision.

Withdrawal of Station Facilities in North Eastern Region.—Because of the loss which is being incurred, passenger facilities will be withdrawn from Picton and Yarm Stations, on the Northallerton-Eaglescliffe line of British Railways, North Eastern Region, on January 4. Bus services operate in the area. Parcels traffic will continue to be collected and delivered by British Railways road vehicles. Facilities will be retained at Picton and Yarm Stations for parcels to be handed in, or called for, by the public. There will be no change in the goods traffic arrangements. Lemington Goods Station, on the Newcastle-Hexham line, will be closed from the same date. Alternative facilities for full wagon loads are available at Newburn and Scotswood Stations. There will be no

change in the arrangement for dealing with small consignments of goods traffic by British Railways road services based on Newcastle Forth Goods Station.

Serck Radiators Limited Results.—The Group net profit by Serck Radiators Limited for the year ended August 1, 1959, is £693,005 (£594,755) and dividends are 17½(15) per cent plus a special distribution of 2½ths per cent (nil) and a one-for-two scrip issue. The meeting is in Birmingham on November 27.

Electrification Exhibition at Battersea.—The exhibition of railway electrification equipment and rolling stock to be staged at Battersea in October, 1960, in conjunction with the British Railways Electrification Conference will be in two parts. The outside section will consist of electric locomotives staged by the B.T.C., and the inside section will be a manufacturers' exhibition of equipment. The following exhibitors will be taking part: H. J. Baldwin & Co. Ltd., Thomas Bolton & Sons Ltd., Morgan Crucible Co. Ltd., Ferranti Limited, J. Stone & Co. (Deptford) Ltd., Enfield Cables Limited, Crompton Parkinson Limited, British Insulated Callender's Cables Limited, A. Reyrolle & Co. Ltd., Foster Transformers Limited, Standard Telephones & Cables Limited, Hackbridge & Hewittic Electric Co. Ltd., Doulton Industrial Porcelains Limited, Ottermill Switchgear Limited, The Cressall Manufacturing Co. Ltd., W. T. Glover & Co. Ltd., W. T. Henley's Telegraph Works Co. Ltd., Nalder Bros. & Thompson Ltd., Bastian & Allen Limited, Fuller Electric Limited, Brush Electrical Engineering Co. Ltd., Bruce Peebles & Co. Ltd., Switchgear & Cowans Limited, English Electric Co. Ltd., South Wales Switchgear Limited, General Electric Co. Ltd., Westinghouse Brake & Signal Co. Ltd., Associated Electrical Industries Limited, Automatic Telephone & Electric Co. Ltd.

Morgan Components Limited.—To clarify the association with the parent company, the Morgan Crucible Co. Ltd., the name of the Synthetic Carbon & Engineering Co. Ltd. has been changed to Morgan Components Limited. The company's production capacity at Stanmore has been enlarged and will be concentrated on the sales and production of all brush holders hitherto manufactured by the Morgan Crucible Co. Ltd. and the Synthetic Carbon & Engineering Co. Ltd. Morgan Components Limited will continue to manufacture and supply a variety of metal contacts and associated metal assemblies which were formerly supplied by the Synthetic Carbon & Engineering Co. Ltd. Enquiries and orders for carbon brushes and carbon contacts formerly supplied by the latter firm should now be sent to the Morgan Crucible Co. Ltd., Battersea Church Road, London, S.W.11. The grades of carbon used will be as previously supplied but the grade markings will conform to the Morganite series. The interests of both firms will be covered by a single force of sales representatives.

New York Central System Investment in Air Line.—The New York Central System has invested $5,000,000 in a cargo air line, the Flying Tiger Line. The management of the railway is to study the possibility of what are termed "air-surface" movements.

Harrow & Wembley Productivity Association Conference on Transport.—The application of modern management techniques to transport problems will be discussed at a one-day conference to be held by the Harrow & Wembley Productivity Association on January 5, 1960. The theme of the conference is "Can you afford your transport fleet?" The Work Study Unit of the British Productivity Council will show how the transport problems of a large departmental store can be alleviated as the result of a survey carried out on the store premises and with its vans on the road. Speakers from the British Transport Commission and the Transport & General Workers' Union will be under the chairmanship of Mr. E. W. Hancock, Director of Special Products (Routes Group), Humber Lmited, Coventry. The conference will be held in the Council Chamber of the Federation of British Industries at 21, Tothill Street, S.W.1. Tickets, price £2 2s., may be obtained from Mr. A. G. Sells, Hon. Secretary, Harrow & Wembley Productivity Association, Industrial Engineering Department, Kodak Limited, Harrow, Middlesex (tel. Harrow 4380, ext. 5).

Philips Electrical Limited Sole Distributorship.—Research & Control Instruments Limited has been appointed sole distributor in the United Kingdom area for the industrial products at present marketed by its associated company, Philips Electrical Limited. A new division has been set up by R.C.I. for this purpose. Customers' orders will be dealt with by the same specialised staff from Philips Electrical Limited as hitherto. All correspondence relating to the sale and servicing of Philips arc welding supplies, filtration equipment, and high-frequency heating generators should be addressed to Research & Control Instruments Limited, Industrial Products Division, Instrument House, 207, King's Cross Road, London, W.C.1. Telephone : Ter. 2877.

Diesel Haulage in South Africa

Coal train headed by two "D.700" class General Electric locomotives, representing 140 tons adhesive weight and 2,640 b.h.p. of engine power, on Rand coal train near Rooikop, South African Railways

Charles Roberts & Co. Ltd. Increased Activities.—The activities of Charles Roberts & Co. Ltd. increased in scope during the year to March 31, 1959, with hire-purchase interests expanding substantially. The report of the Chairman, Mr. D. Bailey, shows that total investments in merchandise, subject to agreements with or without purchase option, increased from £1,214,236 to £2,101,288.

Forthcoming Meetings

November 20 (*Fri.*).—Institute of Transport, Tees-side Section, at the Cleveland Scientific & Technical Institution, Middlesbrough, at 6.30 p.m. Paper on "How much art in advertising," by Mr. H. D. Muirhead, Publicity Division, British Transport Commission.

November 20 (*Fri.*).—South Wales & Monmouthshire Railways & Docks Lecture & Debating Society, Swansea Section, in the Board Room, Dock Manager's Office, Adelaide Street, Swansea, at 6.45 p.m. Paper on "The role of the economist in the mid 20th century," by Professor A. Beacham, University College of Wales, Aberystwyth. Joint meeting with the Institute of Transport, South Wales & Monmouthshire Section.

November 21 (*Sat.*).—Railway Correspondence & Travel Society, South of England Branch, at the Palmer Hall, West Street, Reading, at 6 p.m. Paper on "The Claughtons of the L.N.W.R." by Mr. R. M. Tomkins.

November 21 (*Sat.*).—Railway Correspondence & Travel Society, Sussex & Kent Branch, at the Railway Hotel, Brighton, at 6.30 p.m. Film show by Mr. A. Endersby, "The last days of steam on the Chatham line."

November 23 (*Mon.*).—Railway Correspondence & Travel Society, Northampton Branch, at the Liberal Club, Castilian Street, Northampton, at 7.30 p.m. Paper on "Pre-grouping engines at work in the 1950's," by Mr. S. Summerson.

November 24 (*Tues.*).—Institution of Civil Engineers, Great George Street, Westminster, S.W.1, at 5.30 p.m. Paper on "The mechanisation of railway civil engineering maintenance works," by Mr. Arthur Dean, Mr. Peter Chalmers, and Mr. A. C. Layhe.

November 24 (*Tues.*).—Institution of Railway Signal Engineers, Bristol Section, at Chippenham, at 6 p.m. "Any signalling questions?" Informal meeting.

November 24 (*Tues.*).—Railway Correspondence & Travel Society, East Midlands Branch, at the N.C.S. Guild Room, Toll Street, Nottingham, at 7.30 p.m. Railway recordings in colour and sound presented by Mr. R. C. Anthony.

November 25 (*Wed.*).—Peterborough Technical College, Railway Discussion Group, at Eastfield Road, at 6.45 p.m. Paper on "A trader looks at railways," by Mr. S. Robinson, Transport Manager, British Sugar Corporation.

November 25 (*Wed.*).—British Railways Southern Region, Lecture & Debating Society, at the Chapter House, St. Thomas Street, S.E.1, at 6 p.m. Visits of the Society in retrospect—an exhibition of films, slides, and photographs.

November 25 (*Wed.*).—Railway Students' Association at the London School of Economics & Political Science, Houghton Street, Aldwych, W.C.2, at 6.15 p.m. Paper on "Future developments in passenger travel," by Mr. G. F. Fiennes, Line Traffic Manager, Great Northern Line, British Railways, Eastern Region.

November 26 (*Thur.*).—Institution of Civil Engineers, at Great George Street, Westminster, S.W.1, at 5.30 p.m. Informal debate: "Is the practical training of civil engineers adequate?" Principal speakers: Mr. G. A. Wilson, Mr. Arthur Dean, and Mr. Charles Brand.

November 26 (*Thur.*).—Institution of Electrical Engineers, at Savoy Place, London, W.C.2, at 5.30 p.m. Paper on "The application of low-pressure resins to some high-voltage switchgear designs," by Mr. T. R. Manley, Mr. K. Rothwell, and Mr. W. Gray.

November 28 (*Sat.*).—The Railway Club, at the Danish Club, Knightsbridge, S.W.1. Annual dinner.

November 29 (*Sun.*).—Railway Correspondence & Travel Society. All branches annual reunion in Birmingham, at the Queens Hotel, adjacent to New Street Station, at 2.15 p.m. Speakers will include Mr. L. T. C. Rolt on, "The life of I. K. Brunel," and Mr. P. B. Whitehouse presenting one of his T.V. feature films with comments.

December 1 (*Tue.*).—Railway Correspondence & Travel Society, Sheffield Branch, at the Livesey Clegg House, Sheffield, at 7.30 p.m. Paper on "The Cheshire Lines Committee," by Mr. R. Dyson.

December 1 (*Tue.*).—Permanent-way Institution, Leeds & Bradford Section, in the British Railways Social & Recreation Club, Ellis Court, Leeds City Station, at 7 p.m. Paper on "Electrification work," by Mr. A. I. Emerson, Assistant to Chief Civil Engineer, York.

December 2 (*Wed.*).—Institution of Railway Signal Engineers, London Section, at the Institution of Electrical Engineers, Savoy Place, W.C.2, at 6 p.m. Paper on "Measurement of wagon resistance in marshalling yards," by Mr. D. R. Turner, British Railways Research Centre.

December 2 (*Wed.*).—Peterborough Technical College, Railway Discussion Group at Eastfield Road, at 6.45 p.m. Paper on "Travel," by Mr. H. Hudson.

December 2 (*Wed.*).—Institute of Traffic administration, London Centre, at the Caxton Hall, Westminster, S.W.1, at 7.15 p.m. Paper on "Materials handling in transport," by Mr. K. H. Ward.

December 3 (*Thur.*).—British Railways, Western Region, London Lecture & Debating Society, in the Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, W.2, at 5.45 p.m. Notes on a visit to the U.S.S.R., illustrated, by Mr. L. W. Ibbotson, Assistant General Manager (Modernisation).

December 3 (*Thur.*).—South Wales & Monmouthshire Railways & Docks Lecture & Debating Society, Newport Branch, in the Dining Rooms, Newport High Street Station, at 6.45 p.m. Joint debate with the Bristol Society—"That service is more important than rate in attracting traffic."

December 3 (*Thur.*).—Institute of Transport, Leicester Group, in the Empire Lounge, Tower Vaults, Humberstone Gate, at 7.30 p.m. Open night and film show.

December 4 (*Fri.*).—The Railway Club, at the Royal Scottish Corporation, Fetter Lane, E.C.4, at 7 p.m. Paper on "My personal railway reminiscences, 1899-1959," by Mr. M. D. Greville.

Railway Stock Market

The buoyant trend in stock markets has received a new stimulus from widespread talk of prospects of more tax cuts in the next Budget. Already there are suggestions of a further reduction in the standard rate of income tax, and of important tax concessions to help industry. These hopes, it is assumed, will justify the prevailing view that higher dividends payments are in prospect. This assumption explains the very big rise in share values. At one time last week markets turned a little reactionary. This was after a mild suggestion from the Governor of the Bank of England, Mr. Cameron Cobbold, that the rate of advance in share values might be a little too rapid. It was not long before renewed demand was in evidence.

Foreign rails have not attracted much attention, but a feature was provided by Antofagasta ordinary stock, which, compared with a week ago, has moved up from 17 to 20½, its best so far this year. The preference stodk at 34½ was also at the year's best; a week ago the quotation was 27. The 5 per cent (Bolivia) debentures remained at 94½. San Paulo Railway 3s. units remained at 1s. 6d. and United of Havana second income stock at 6.

Chilean Northern first debentures kept at 60 and Paraguay Central prior debentures at 18½, but Costa Rica ordinary stock lost a further point at 21½.

Canadian Pacifics, reflecting Wall Street, eased from $47⅛ a week ago to $46⅞, at which there is an attractive yield of 6 per cent. The 4 per cent preference stock rallied from 58¾ to 60¼ and the 4 per cent debentures were little changed at 67¼. White pass shares eased to $13½.

International of Central America kept at $25½, but the preferred stock was marked down from $115½ to $112½. West of India Portuguese capital stock kept at 106½. Brazil Railway bonds were again 7.

Nyasaland Railways shares were again 10s. 6d., but the 3½ per cent debentures came back to 54 xd.

Charles Roberts 5s. shares remained active, and, compared with a week ago, have rallied from 18s. 3d. to 18s. 10½d. Beyer Peacock 5s. shares were firm at 9s. and in other directions, Gloucester Wagon 10s. shares moved up from 14s. 3d. to 15s. 3d. Wagon Repairs 5s. shares held steady at 9s. 6d. North British Locomotive were again quoted at 9s. and Birmingham Wagon remained at the lower level of 30s. recorded a week ago.

Westinghouse Brake held their rise to 52s. 9d. and Associated Electrical gained 1s. at 64s. 9d. English Electric were 46s. 9d. the same as a week ago, and General Electric 44s. compared with 42s. 9d.

Pressed Steel 5s. shares have advanced afresh from 40s. 7½d, to 44s. 7½d.xd, Dowty Group 10s. shares were 41s. 9d., or within 6d. of the level a week ago. Guest Keen rose strongly to 87s. and Birmid Industries were good at 104s.xd, while Vickers strengthened to 30s. 3d. and Cammell Laird 5s. shares to 7s. 6d.

Metal Industries were 67s. 9d. and Morgan Crucible "A" shares 51s. 6d. but Tube Investments reacted to 119s. 3d.xd. B.I. Cables were 55s. 9d. following the interim statement, and Davy-United have advanced afresh to 107s. Pollard Bearing 4s. shares were 35s. 9d. and Ransomes and Marles 5s. shares 26s. 3d.xd. Stone-Platt Industries shares held firm at 61s. 6d.xd and Ruston & Hornsby were 25s. 10½d. Steel shares continued to attract attention at higher prices in response to higher dividend expectations.

Reflecting the general trend, Dorman Long have risen further from 60s. 6d. to 63s. 10½d. and United Steel from 74s. 6d. to 75s. 7½d.